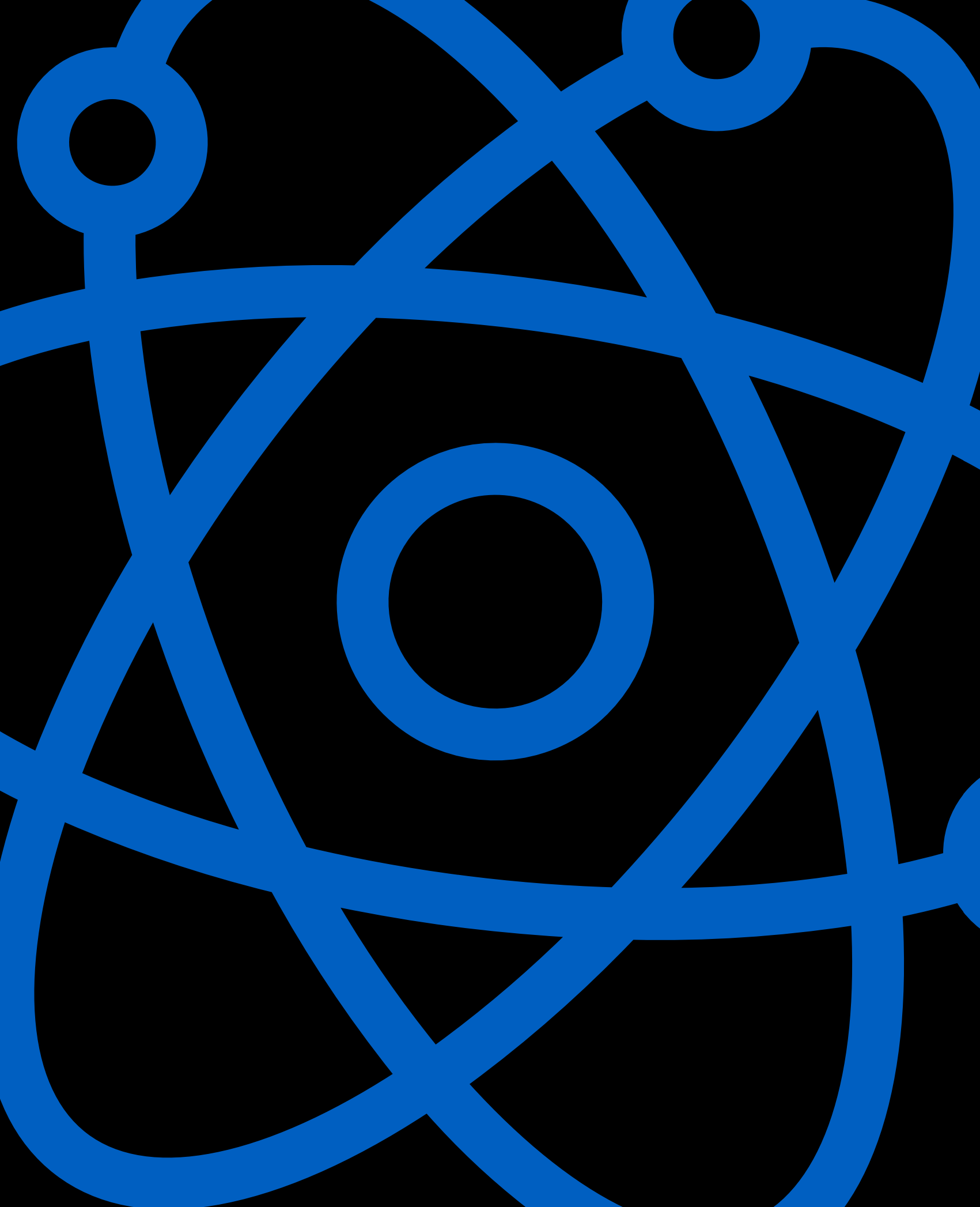
The future is nuclear

2024 BRUCE POWER ANNUAL REVIEW



The future is nuclear

2024 BRUCE POWER ANNUAL REVIEW

At Bruce Power, the structure *of atoms* reflects the dynamics of the *organization*

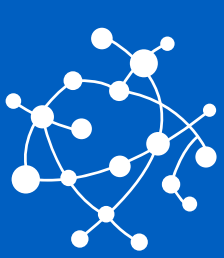




The nucleus represents our core mission and values, providing stability and focus, while the orbiting electrons symbolize our skilled teams, constantly contributing energy and expertise. Just as the harmony within an atom ensures its function, the seamless collaboration across Bruce Power drives the safety, excellence, and innovation that power Ontario's communities. Together, we are shaping a clean energy future — because

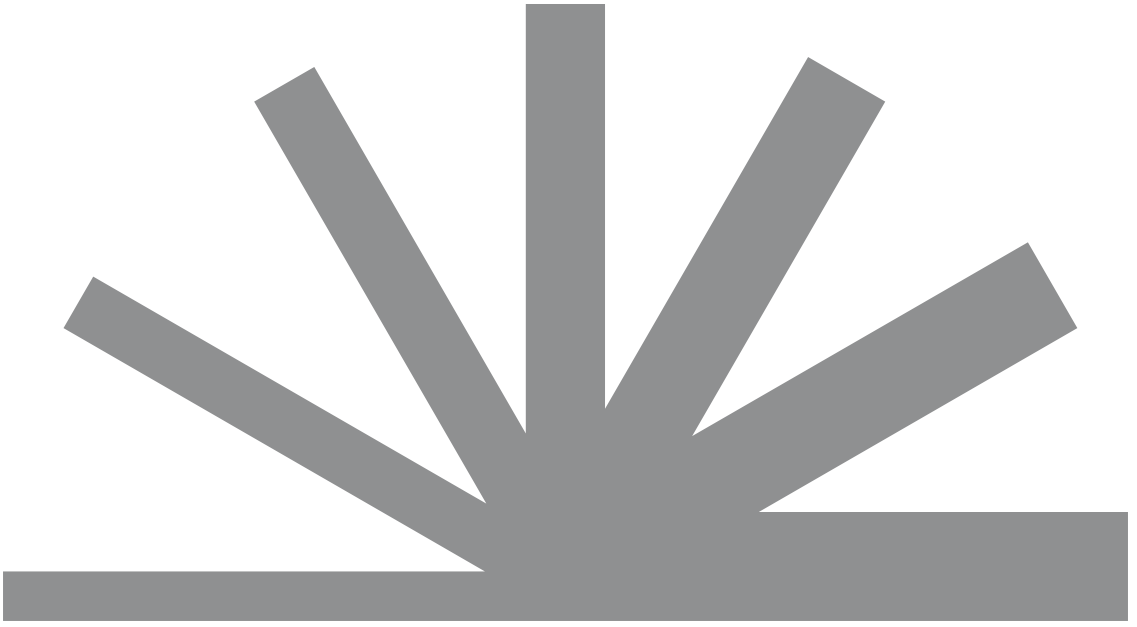
the future is nuclear.





The Bruce Power site is located within the Saugeen Ojibway Nation Territory, the shared treaty and traditional Territory of the Chippewas of Saugeen First Nation and Chippewas of Nawash Unceded First Nation (Neyaashiinigmiing).

Bruce Power is dedicated to honouring Indigenous history and culture and is committed to moving forward in the spirit of reconciliation and respect with the Indigenous communities we work with. We are committed to strong and respectful relationships with the Saugeen Ojibway Nation (SON), the Métis Nation of Ontario (Region 7) and Historic Saugeen Métis.



A message from the *President* and *CEO*

As a team pulling together toward a *common goal*, our employees, contractors and partners accomplished a *great deal in 2024*.

From our success in operating one of the largest nuclear facilities in the world with a record high capacity factor while at the same time safely progressing our Life-Extension Program and Major Component Replacement Project on time and on budget, the people who contribute to Bruce Power should be extremely proud.

Not only are we providing safe, clean and reliable energy for the people and businesses of Ontario, we've doubled our production of cancer-fighting medical isotopes to ensure people around the world have access to this vital resource.

The work we completed in 2024 is setting the foundation for the future. Every day as we progress our Life-Extension Program and continue to innovate to increase our clean energy output and our production of medical isotopes, we're helping to drive Ontario's economy and strengthen our local communities.

I was honoured to be named President and Chief Executive Officer of Bruce Power in 2024 and I look forward to seeing our team and our communities flourish as we move forward.

The future is nuclear.

Eric Chassard,
President and Chief Executive Officer

The future

Bruce Power is a crucial part of Ontario's *clean energy grid*, past, present and future.


is now

We must do everything we can to protect jobs by strengthening our nuclear advantage which powers our status as the economic engine of Canada.

Ontario's Affordable Energy Future: The Pressing Case for More Power

Non-carbon emitting nuclear power is a reliable, stable source of clean electricity generation, helping Ontario meet its electricity demands through hot summer days and frigid winter evenings.

The province has a deeply decarbonized electricity grid, an important tool in fighting climate change both locally and globally, thanks to a clean baseload supply of nuclear and hydroelectricity which provide the province with one of the lowest carbon-emitting electricity grids in the world.

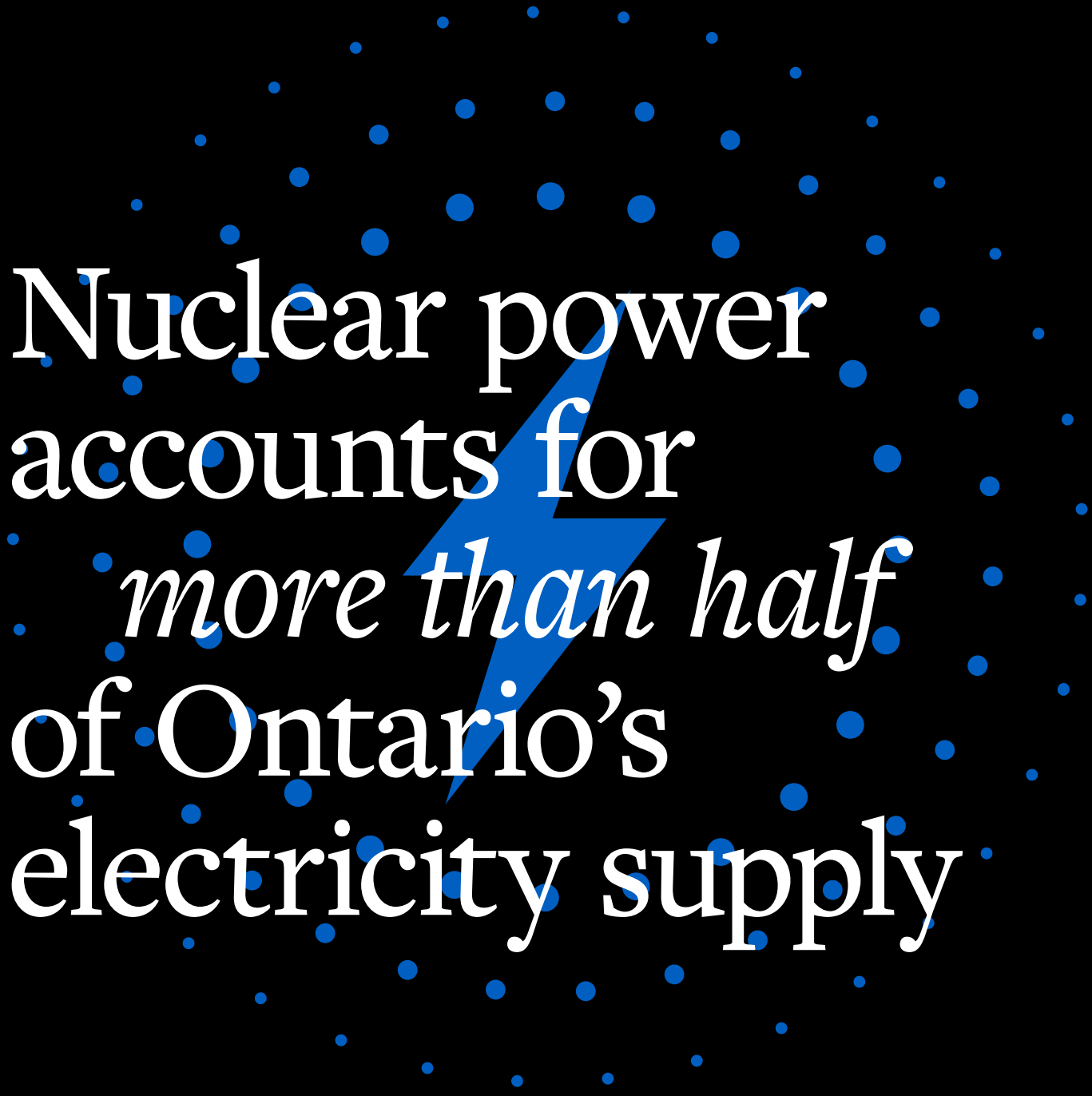
Bruce Power generates almost 30 per cent of Ontario's electricity, powering one in three homes, businesses, hospitals and factories with reliable, clean, non-carbon emitting electricity while also producing cancer-fighting medical isotopes.

Ontario's energy and environmental plans are counting on Bruce Power to provide a reliable and non-carbon emitting source of energy through 2064, and the company is meeting the challenge through continued investment in extending the life of its fleet and increasing the output of existing units.

As we look ahead and plan for a clean energy future, nuclear is the only form of readily expandable non-carbon emitting generation that can provide a reliable and scalable source of electricity for the growing needs of the province. Nuclear power is critical in the fight against climate change, and Bruce Power stands ready to leverage our past successes to help build for Ontario's energy future. Work is underway in conducting a study on the feasibility of the option of a new nuclear build on the Bruce Power site, and over the past year Bruce Power has worked with Ontario Power Generation and the Independent Electricity System Operator to develop options for building future small and large nuclear generation facilities in Ontario.

Bruce Power understands the importance of nuclear in meeting the ambitious goals of the province to provide a stable, reliable source of non-carbon emitting energy. These ongoing efforts will ensure Bruce Power continues to supply Ontario schools, businesses and hospitals with the clean energy they need, while also supplying cancer-fighting isotopes for the medical community at home and around the world.

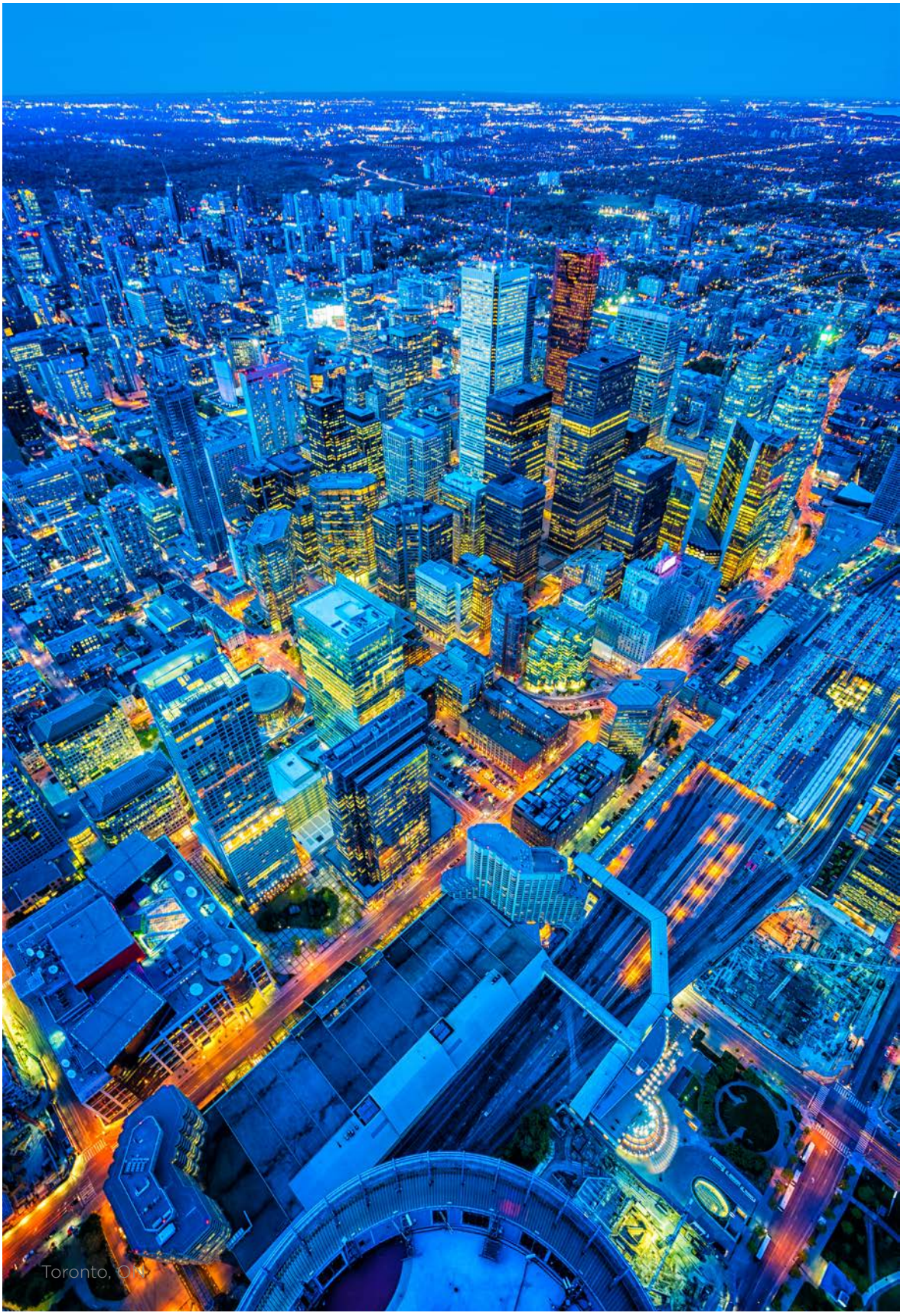
Arlen McCarty,
Reactor Maintenance



Nuclear power accounts for *more than half* of Ontario's electricity supply

Nuclear was critical in Ontario's efforts to phase out coal powered generation and will be just as important as our economy electrifies and demand for energy grows.

Ontario's Affordable Energy Future: The Pressing Case for More Power


Toronto, ON

Ontario *electricity generation* by fuel type

NUCLEAR

51%

HYDRO

24%

GAS

16%

WIND

9%

SOLAR 0.4% AND BIOFUEL 0.2%

< 1%

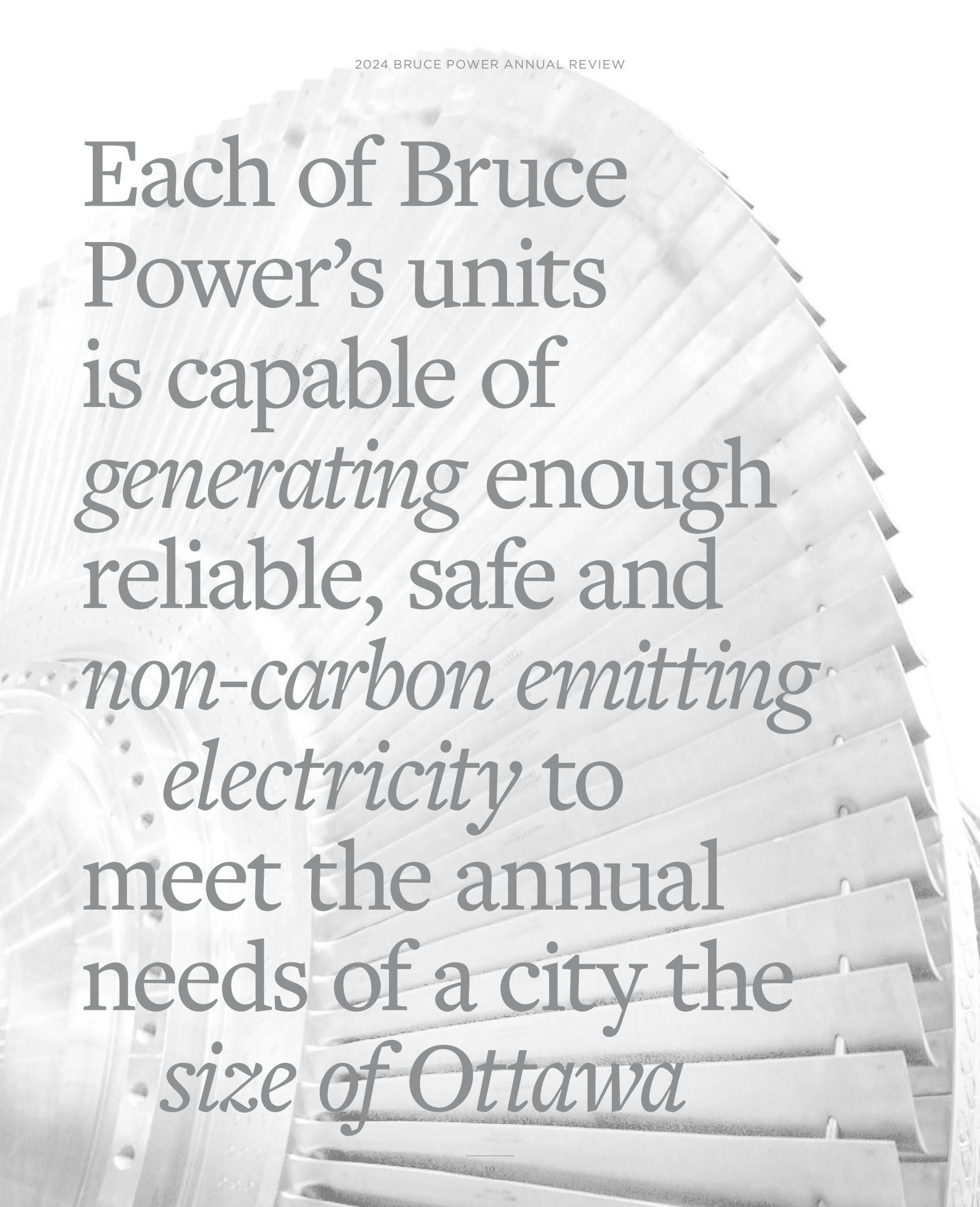
BRUCE POWER

Electricity supply in Ontario comes from a diverse mix of different fuel types: wind, solar, hydro (water power), natural gas, and nuclear. Non-carbon emitting nuclear electricity is the backbone of the grid, providing 51% of electricity in Ontario, with 29% coming from Bruce Power.

"The work we're doing today on Bruce Power's Life Extension provides great opportunities for tradespeople and the community. It's also providing something to build on for my kids and the next generation."

Craig Walker,
Aecon Construction Manager,
Steam Generator Replacement Team

Ontario's Building and Construction Trades are key participants in Bruce Power's Life-Extension program and the highly skilled tradespeople are ensuring work is being completed with quality, on budget, and on schedule. They're helping meet Ontario's long-term electrification needs, growing the economy, creating jobs, and achieving climate goals.



Each of Bruce Power's units is capable of *generating* enough reliable, safe and *non-carbon emitting electricity* to meet the annual needs of a city the *size of Ottawa*

Bruce Power is Canada's largest public private partnership. Bruce Power, a private company, leases the Bruce Power site from the Ontario government and provides all investment for development and operation of Bruce Power's nuclear facilities.

This arrangement with the Ontario government allows the province to diversify its risks in the electricity generation sector, and taps into the expertise and capital of the private sector. Through this model, Bruce Power's site has been revitalized, and with the restart of Bruce A and the ongoing, multi-billion dollar refurbishment project of the remaining units, this partnership will ensure the province will have access to clean, reliable nuclear power and cancer-fighting medical isotopes through 2064.

BRUCE POWER OUTPUT 2024

UNIT 1
5.80 *TWh*

UNIT 2
7.19 *TWh*

UNIT 3
MCR

Unit 3 was off-line in 2024 for its Major Component Replacement outage, which began in 2023.

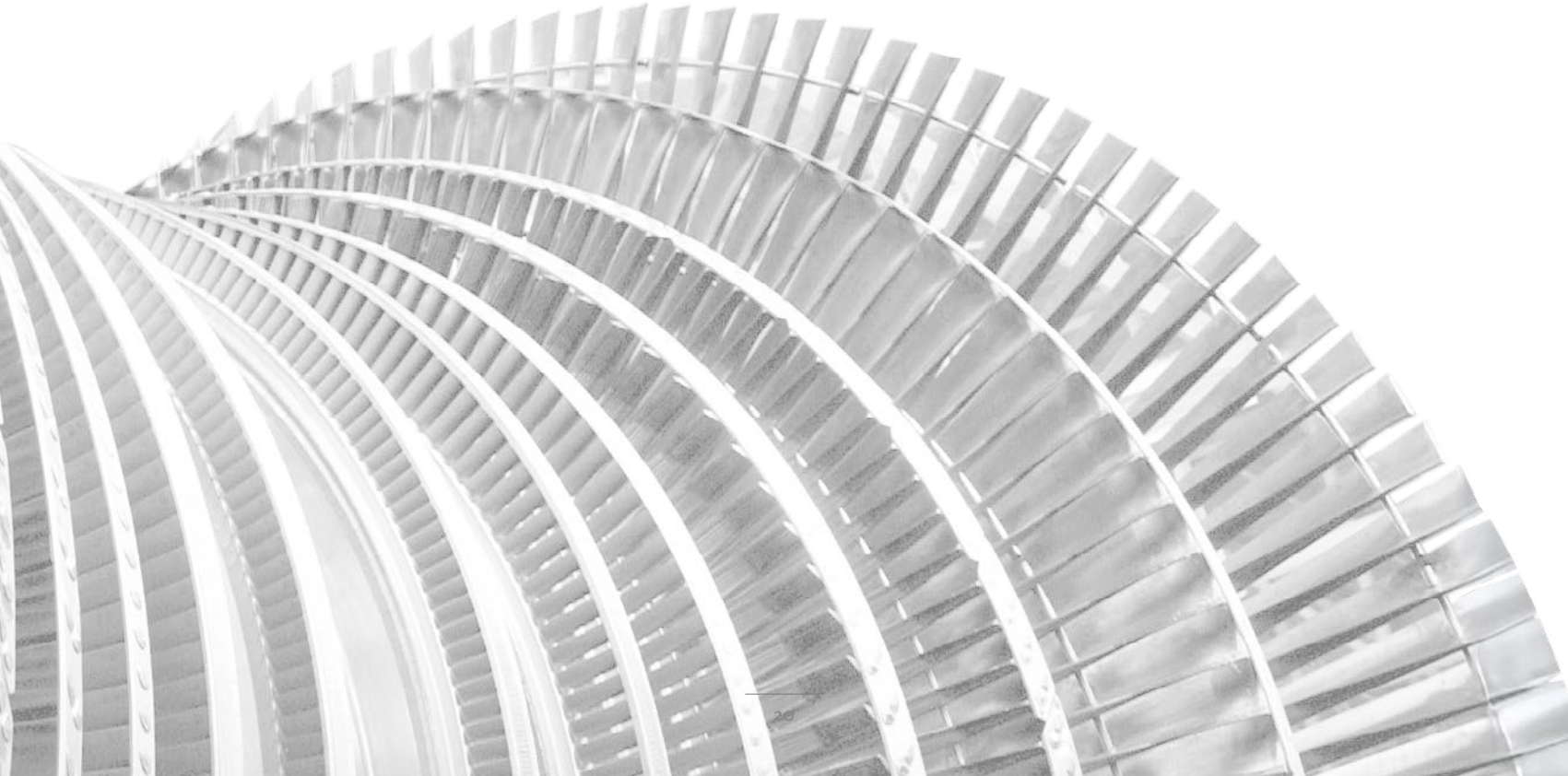
UNIT 4
6.82 *TWh*

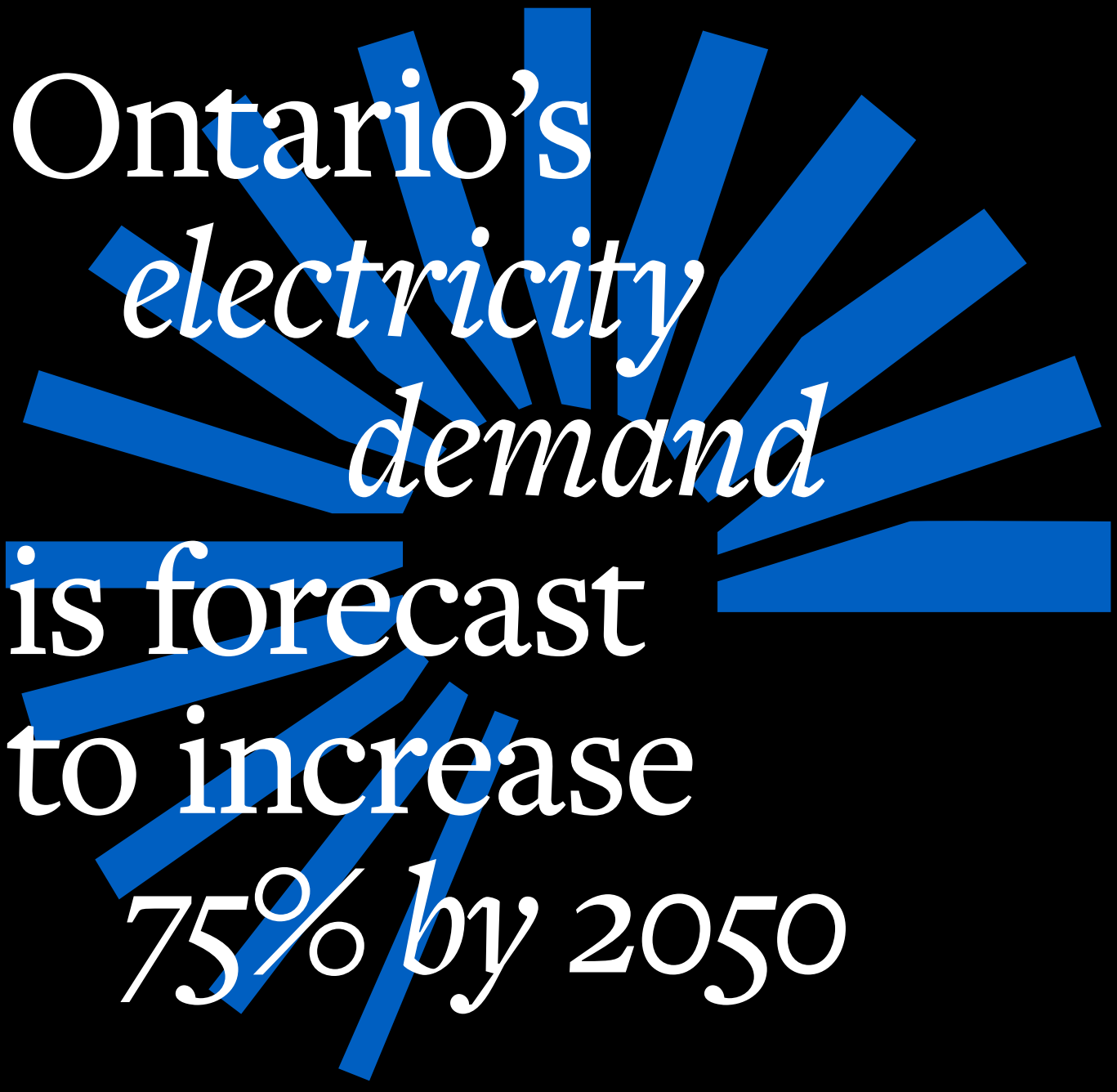
UNIT 5
6.70 *TWh*

UNIT 6
6.83 *TWh*

UNIT 7
5.92 *TWh*

UNIT 8
6.73 *TWh*




Ontario's
electricity
demand
is forecast
to increase
75% by 2050

Planning for the future

Ontario boasts a deeply decarbonized grid, and planning is underway to ensure it continues to reap these benefits as the needs of the province continue to expand.

As Ontario grows, and brings new homes, manufacturing, and data centres to the province, economic expansion and electrification of the commercial, industrial, and transportation sectors will continue to increase energy demand over the next three decades.

The Ontario Independent Electricity System Operator (IESO) 2025 demand forecast, a key component of the agency's 2025 Annual Planning Outlook, predicts electricity demand to increase by 75 per cent by 2050 as compared to historical demand benchmarks, notably higher the previous forecast.

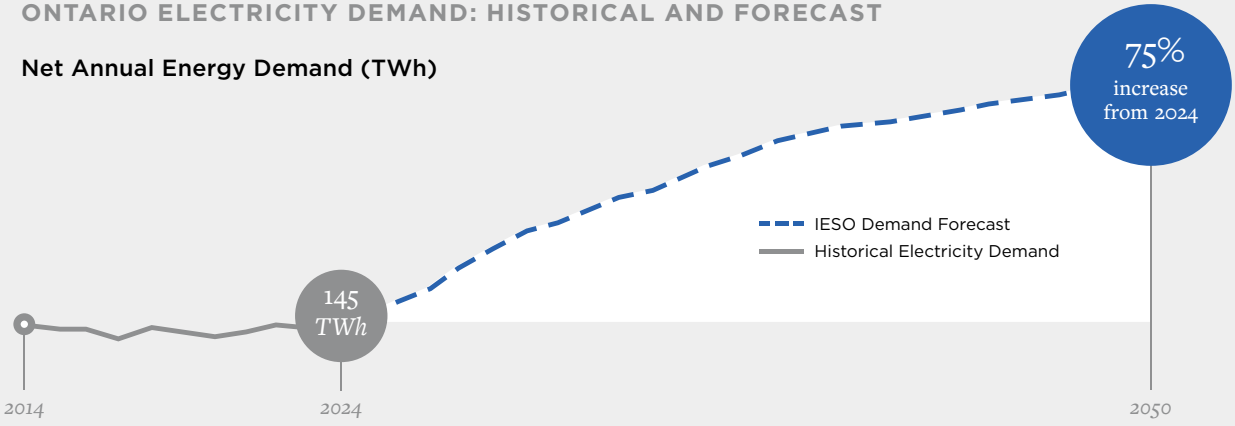
The IESO report predicts a growth in energy demand of over 110 TWh from 2025 to 2050, or enough electricity to power four-and-a-half cities the size of present-day Toronto.

To maintain Ontario's clean energy advantage, long-term planning is required to ensure the province can meet rising energy demand in a co-ordinated and efficient manner which balances the overall system cost, reliability, and non-carbon emitting output.

In October, the Ontario government introduced *Ontario's Affordable Energy Future: The Pressing Case for More Power*, which prioritizes non-carbon emitting nuclear energy to support the province's growth-focused energy agenda. Bruce Power is committed to playing a key role in Ontario's energy future and looks forward to continuing to work with the Ontario Government on implementation of its long-term integrated energy plan.

Bruce Power is proud to be a part of contributing to a prosperous, clean energy future for the people of Ontario, powering the path to a cleaner tomorrow.

ONTARIO ELECTRICITY DEMAND: HISTORICAL AND FORECAST



IESO 2025 Annual Planning Outlook: Demand Forecast

The IESO 2025 Annual Planning Outlook demand forecast shows annual energy demand is expected to increase 75 per cent by 2050, indicating the need for an additional 12 TWh of energy by 2035 when compared to the previous forecast. This is equivalent to approximately two Bruce Power units. Following Project 2030 investments to optimize the output from the Bruce Power site, Bruce Power Units 1 and 2 will produce an average output of approximately 12-13 TWh annually, exemplifying significant benefit to the continued operation of Unit 1 and 2 beyond the 2040s.

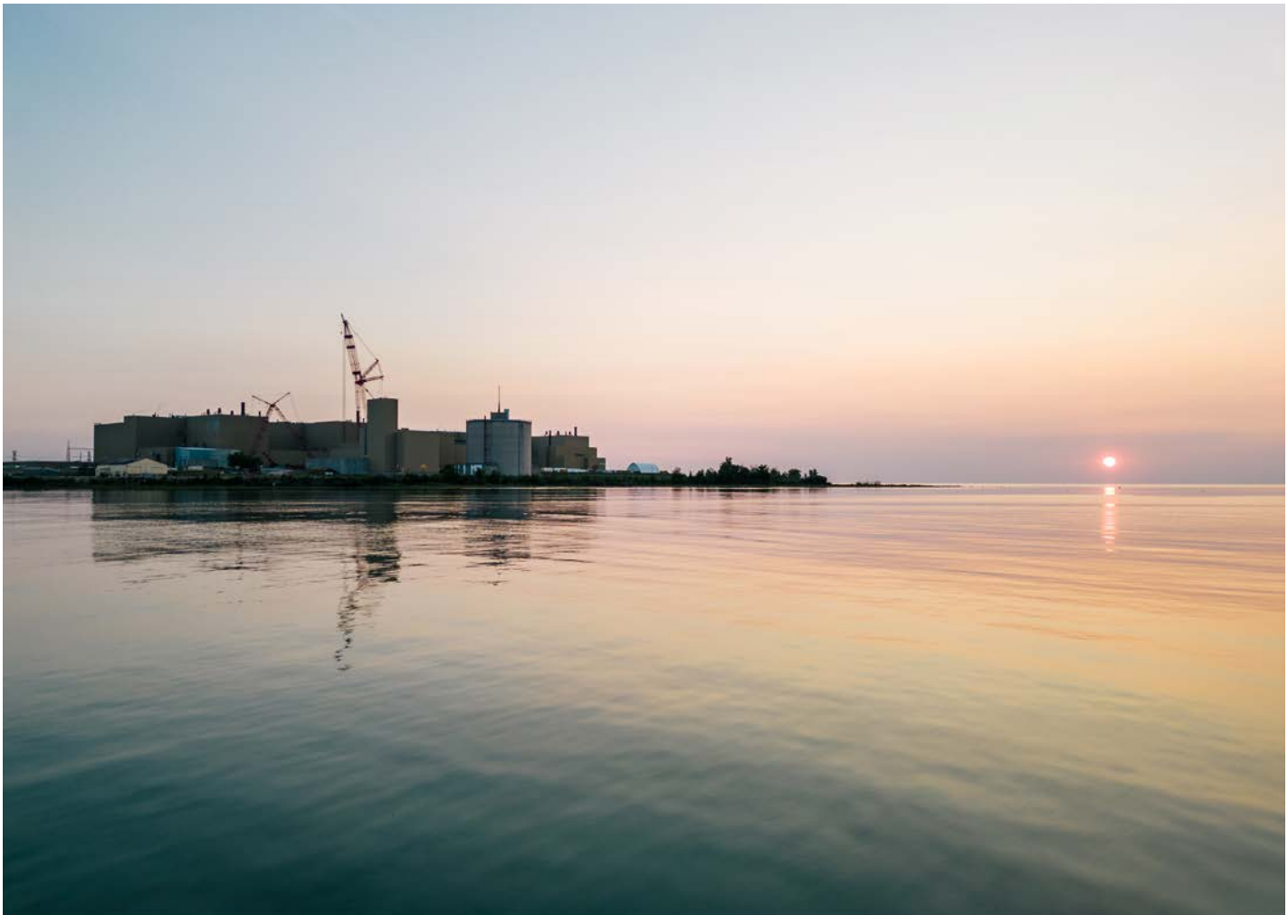
Growing up, Alison Jones saw the pride her father took in his career as a *Nuclear Operator* on the Bruce Power site.

"My father enjoyed sharing his knowledge of nuclear power with his kids and it created a passion for this industry within me," said Jones, who is now helping to renew the site on which her father worked for more than 35 years.

Alison Jones,
Human Performance Manager,
Shoreline Power Group

Jones has been a Human Performance Manager for Shoreline Power Group for the past six years, currently working to instill safety in the Steam Generator Replacement Team.

"When I heard about Major Component Replacement, I was excited about the possibility of working on a project that would extend the life of these important units," she said. "I hope to share my passion for nuclear power with the next generation of my family and express the important role that nuclear power plays, not only to our community but in combatting climate change."



$17 *billion*

CONTRIBUTED TO CANADA'S ECONOMY EACH YEAR BY THE NUCLEAR INDUSTRY

80 *million*

TONNES OF CO_2 EMISSIONS AVOIDED PER YEAR IN ONTARIO WITH NUCLEAR POWER

Ontario nuclear *by the* numbers

22,000

JOBS SECURED DIRECTLY AND INDIRECTLY BY BRUCE POWER'S LIFE-EXTENSION PROGRAM AND MCR PROJECT

65,000

JOBS IN THE PROVINCE SUPPORTED BY ONTARIO'S NUCLEAR INDUSTRY

51%

OF ONTARIO'S ANNUAL ELECTRICITY NEEDS MET BY BRUCE POWER AND OPG NUCLEAR POWER STATIONS

14,200

PEOPLE DIRECTLY EMPLOYED BY BRUCE POWER AND OPG

Powered by

Adam Walsh,
Authorized Inspection Services

our people

Molly Pinfield,
Fuel Handling Field Operations

Life-Extension Program

Bruce Power's Life-Extension Program and Major Component Replacement (MCR) Project continue to be a shining light in the nuclear industry, demonstrating that refurbishment of existing large nuclear is not only possible, but responsible.

As Ontario's largest electricity generating facility, Bruce Power's Life-Extension will play a key role in supporting growing electricity needs by extending the operation of its eight units to continue to produce clean energy and cancer-fighting isotopes through 2064 and beyond.

Bruce Power's MCR is Ontario's largest, privately funded clean energy infrastructure project and it remains on schedule and on budget. Renewing Units 3-8 by 2035 will provide clean and reliable power at a time that the Independent Electricity System Operator (IESO) forecasts demand to be steadily rising, while also driving the economy through good jobs and a robust made-in-Ontario supply chain.

HIGHLIGHTS

Units Extended

BRUCE POWER WILL EXTEND THE OPERATION OF ITS SITE THROUGH 2064 AND BEYOND, ENSURING CONTINUED CLEAN ENERGY AND CANCER-FIGHTING ISOTOPE PRODUCTION

2035 Target

BRUCE POWER WILL RENEW UNITS 3-8 BY 2035 TO MEET RISING ELECTRICITY DEMAND WHILE SUPPORTING THOUSANDS OF JOBS AND A ROBUST ONTARIO-BASED SUPPLY CHAIN

Major Component Replacement

Like all pieces of machinery, nuclear reactors require maintenance and, eventually, the replacement of key components.

Bruce Power's MCR project will see Units 3-8 renewed and back in service by 2035 to contribute to Ontario's clean energy future for decades to come.

The Unit 6 MCR outage was completed ahead of schedule and on budget, with this strong performance allowing Bruce Power to deliver $50 million back to ratepayers through the IESO.

The momentum of Unit 6 has carried into the three-year Unit 3 MCR outage, which began in 2023 and remains on track in 2024, as plans continue for the Unit 4 MCR outage, set to begin early in 2025.

With a focus on safety, quality and innovation, each successive MCR outage will outperform the last, thanks to a skilled workforce, innovation and the support of Ontario's nuclear industry.

Unmatched scale

BRUCE POWER'S MCR PROJECT INCLUDES A MAGNITUDE OF WORK THAT NO OTHER UTILITY IN THE WORLD IS FACING ON AN OPERATING SITE

2.4 million hours

AMOUNT OF HOURS OF LABOUR BY THOUSANDS OF SKILLED WORKERS TO SUCCESSFULLY COMPLETE THE UNIT 6 MCR

6 years

OVERLAPPING MCRS WILL BE EXECUTED FROM FEBRUARY 2025 TO 2031

$10 billion

PRIVATELY FUNDED BRUCE POWER PROJECTS GENERATE $10 BILLION IN ANNUAL ECONOMIC ACTIVITY, BOLSTERING LOCAL AND PROVINCIAL ECONOMIES

27,000 *jobs*

BRUCE POWER SUPPORTS 22,000 DIRECT AND INDIRECT JOBS, WITH AN ADDITIONAL 5,000 JOBS CREATED ANNUALLY THROUGH ITS MCR PROGRAM

One of *Canada's largest projects*

BRUCE POWER'S LIFE-EXTENSION PROGRAM IS AMONG CANADA'S LARGEST INFRASTRUCTURE ENDEAVOURS, FUELING ECONOMIC GROWTH IN GREY, BRUCE, AND HURON COUNTIES—ONTARIO'S CLEAN ENERGY FRONTIER

90% local spending

MORE THAN 90 PER CENT OF BRUCE POWER'S CAPITAL AND RESOURCE COSTS BENEFIT ONTARIO AND CANADA

"Being able to do something that I am passionate about and *return home to my family* every night is paramount for me. I have never worked for an employer that does so much for the community, and for our province as a whole. *It's incredible*."

As Bruce Power's Subject Matter Expert in Lifting, Rigging and Material Handling, Richard Marcotte is devoted to ensuring the company's Major Component Replacement is carried out safely and successfully. From supervising the operation of 50 cranes on an oil and gas operation in the Gulf of Mexico to consulting and training for companies in the energy, automotive, aeronautics and aerospace industries, Marcotte carries a wealth of experience and credentials.

Richard Marcotte,
First-Line Manager, Construction Support

Progressing Unit 3 MCR

Leveraging lessons learned, the Unit 3 MCR outage is outperforming the same work completed in Unit 6.

In August, Bruce Power reached a major milestone by completing the Unit 3 reactor removal series safely and ahead of schedule.

The removal series was completed faster than in the Unit 6 MCR by leveraging the experience of tradespeople, and innovation through lessons learned and technological advancement. The calandria tube removal, completed July 26, set a CANDU refurbishment record, finishing 11 days ahead of schedule.

Millwrights, boilermakers, and electricians from Shoreline Power Group used first-of-a-kind, six-axis robotic tooling for reactor inspection and installation work.

Steam generator replacements are being completed safely and successfully, with eight of the hulking boilers being removed through the roof of the Bruce A station with a giant crane and new ones being placed back in and installed with precise detail.

HIGHLIGHTS

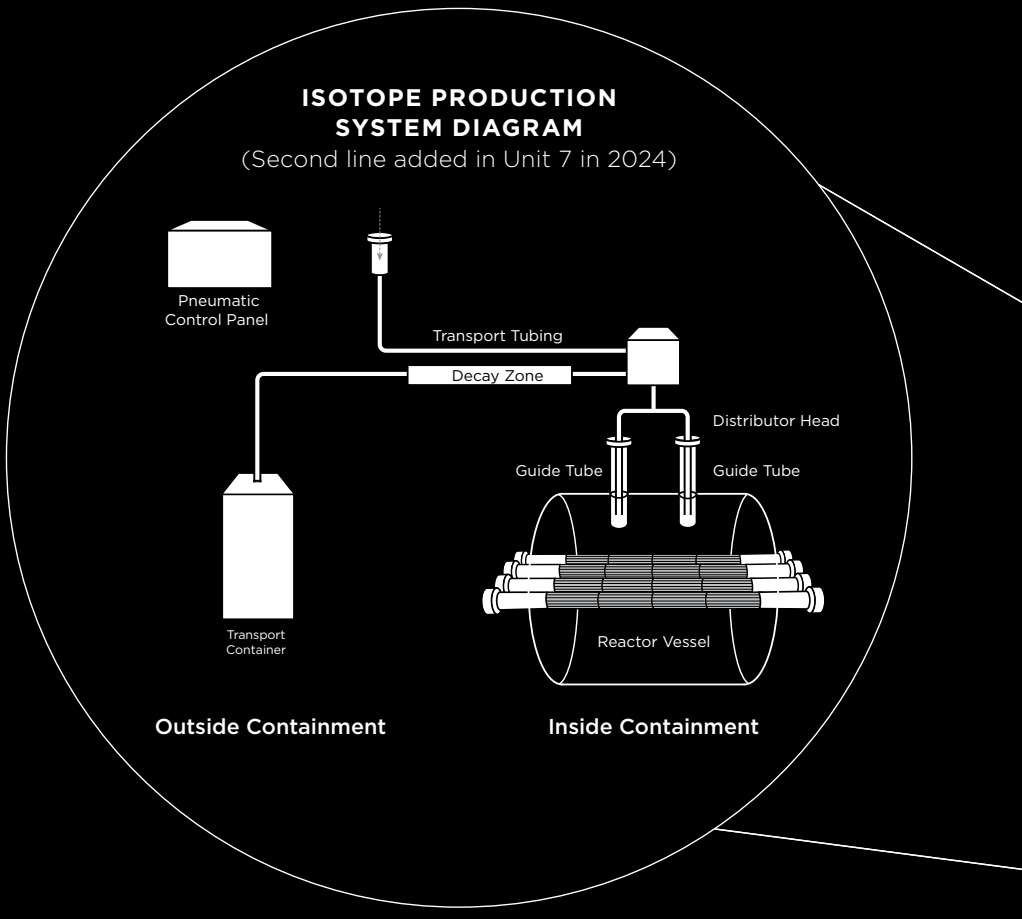
83-tonne

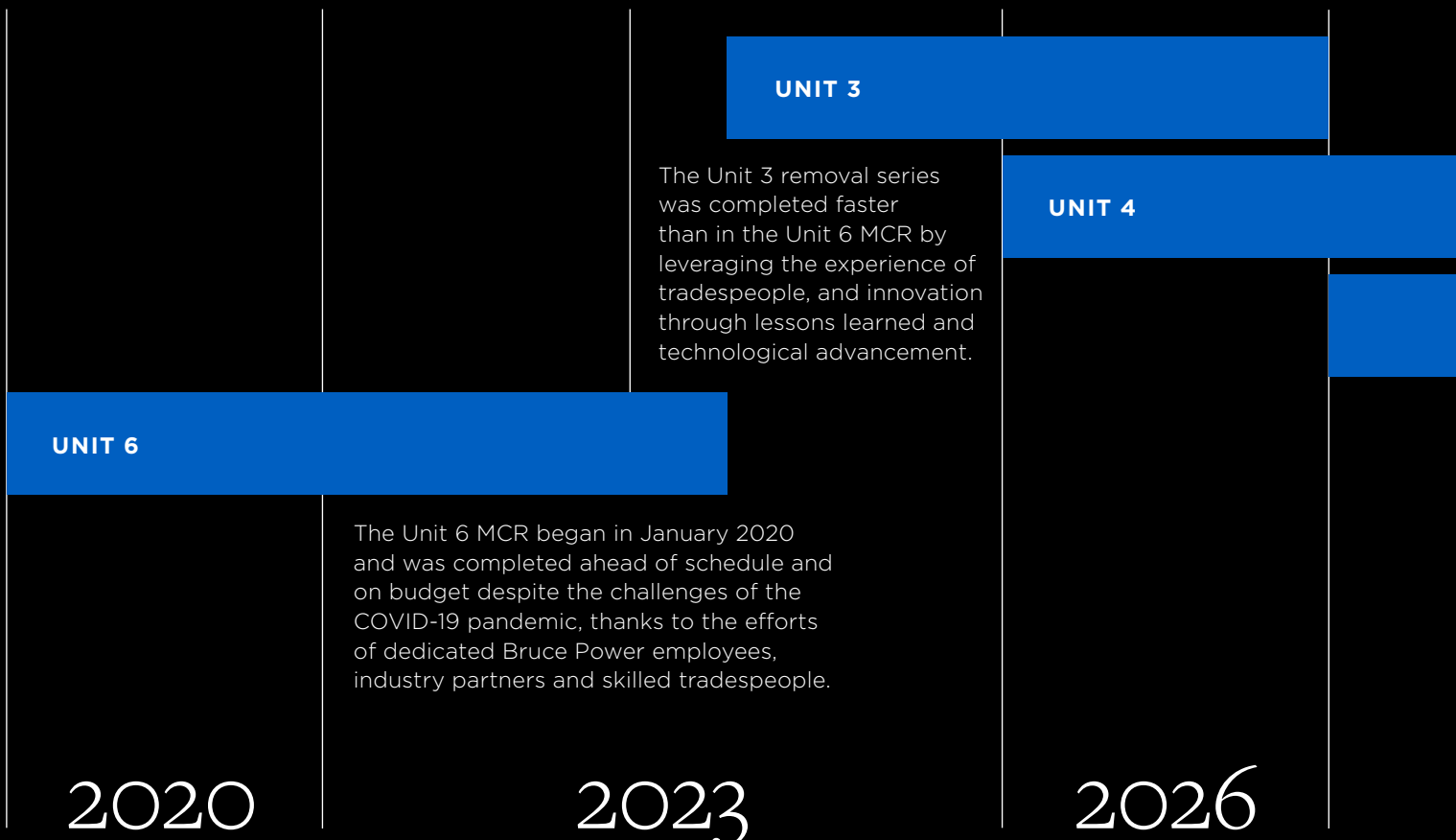
BOILERS REMOVED THROUGH THE ROOF OF BRUCE A STATION WITH A GIANT CRANE

MCR replacement schedule

In December 2015, Bruce Power reached an agreement with the Independent Electricity System Operator (IESO) to advance a long-term investment program which would refurbish its nuclear fleet and secure the site's operation until 2064.

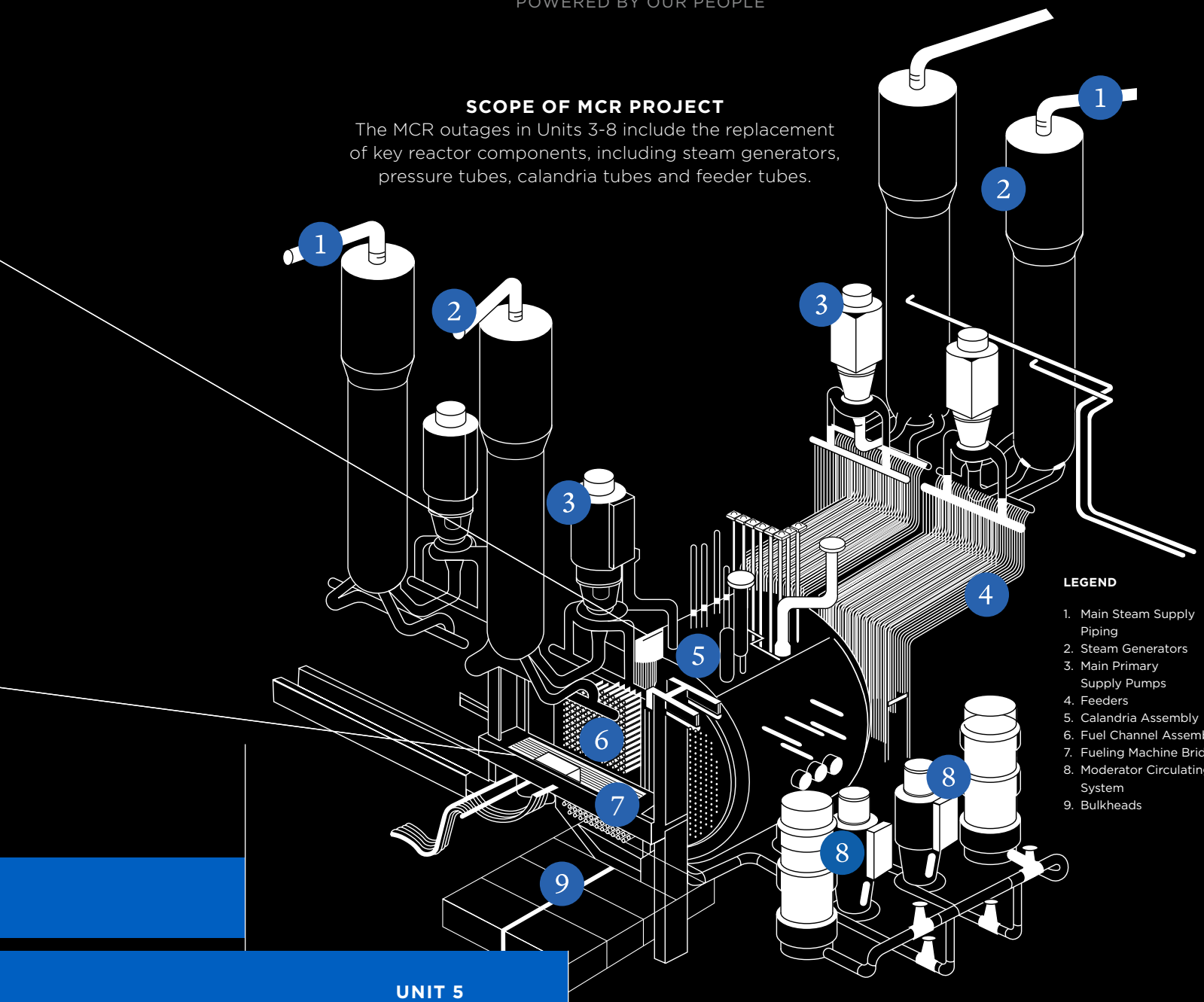
The Life-Extension Program involves the replacement of older systems in the company's eight reactor units during regularly scheduled maintenance outages.





SCOPE OF MCR PROJECT

The MCR outages in Units 3-8 include the replacement of key reactor components, including steam generators, pressure tubes, calandria tubes and feeder tubes.



LEGEND

1. Main Steam Supply Piping
2. Steam Generators
3. Main Primary Supply Pumps
4. Feeders
5. Calandria Assembly
6. Fuel Channel Assembly
7. Fueling Machine Bridge
8. Moderator Circulating System
9. Bulkheads

UNIT 5

UNIT 7

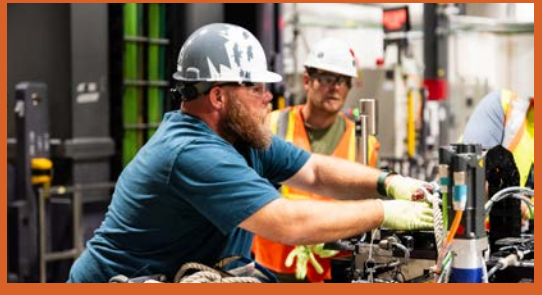
UNIT 8

2027 2028 2030

With overlapping MCR outages over the coming decade, Bruce Power and its partners will be completing a significant scale of work, the magnitude of which has never been seen in the industry.

"To execute a project of this scale and complexity, it takes an ecosystem of nuclear professionals *working together* toward a common goal. We're committed to returning these units to service safely and successfully to meet Ontario's clean energy needs well *into the future*."

Laurent Seigle, Executive Vice-President, Projects

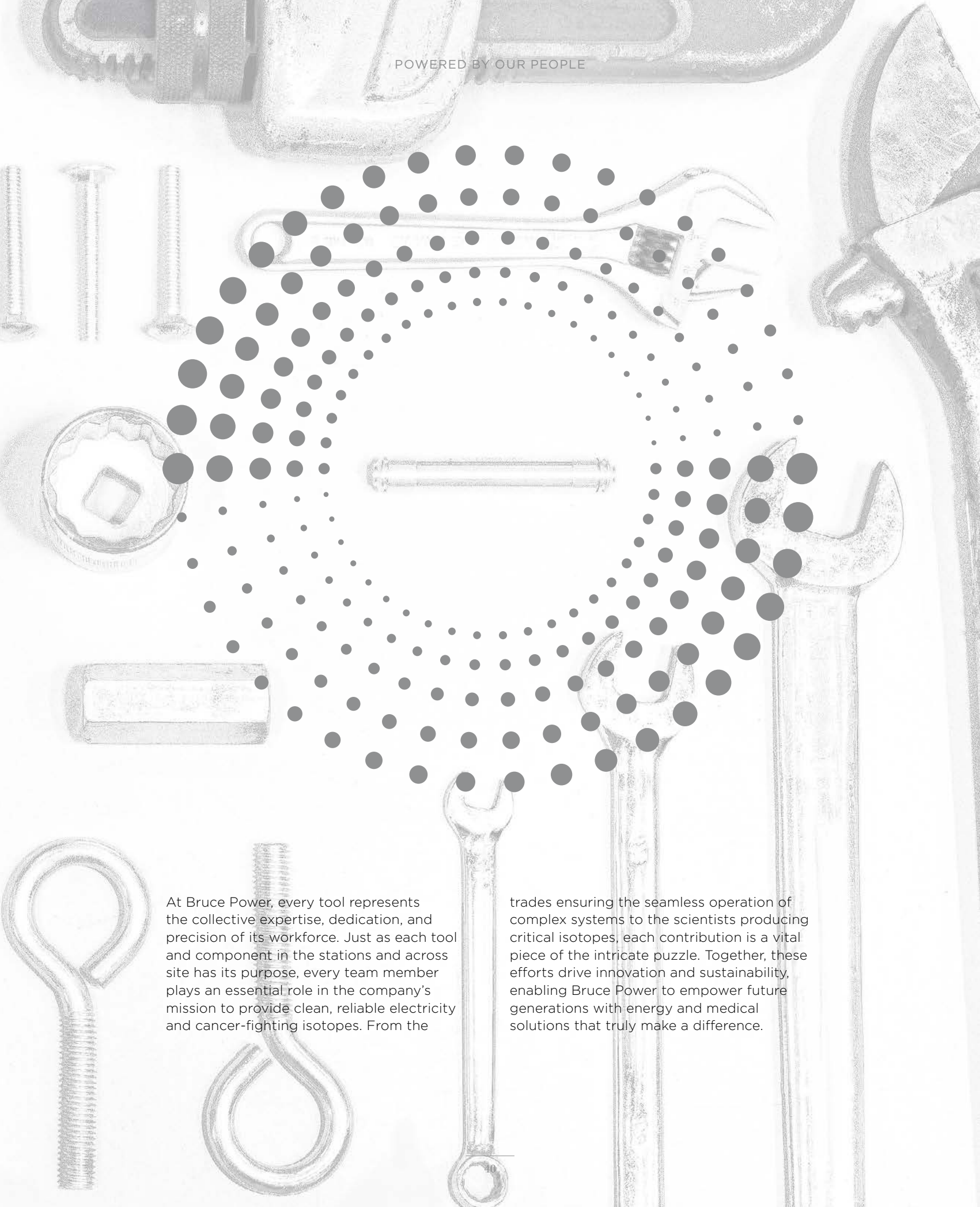


CANDU reactors require refurbishment after 30–40 years of operation. The Darlington Nuclear Generating Station and Bruce Nuclear Generating Station have now reached that point in their operating lives and refurbishments are underway. The Pickering Nuclear Generating Station will reach that stage in the coming years and the government has announced its support for refurbishing the station's four "B" units.

Altogether, the refurbishments at Darlington, Bruce and Pickering would maintain more than 12,000 megawatts (MW) of existing generation capacity that will be necessary if our province is going to continue to grow.

Ontario's Affordable Energy Future: The Pressing Case for More Power

Our collaborative effort *powers Ontario forward* and provides cancer-fighting *medical isotopes* to patients *worldwide*



At Bruce Power, every tool represents the collective expertise, dedication, and precision of its workforce. Just as each tool and component in the stations and across site has its purpose, every team member plays an essential role in the company's mission to provide clean, reliable electricity and cancer-fighting isotopes. From the trades ensuring the seamless operation of complex systems to the scientists producing critical isotopes, each contribution is a vital piece of the intricate puzzle. Together, these efforts drive innovation and sustainability, enabling Bruce Power to empower future generations with energy and medical solutions that truly make a difference.

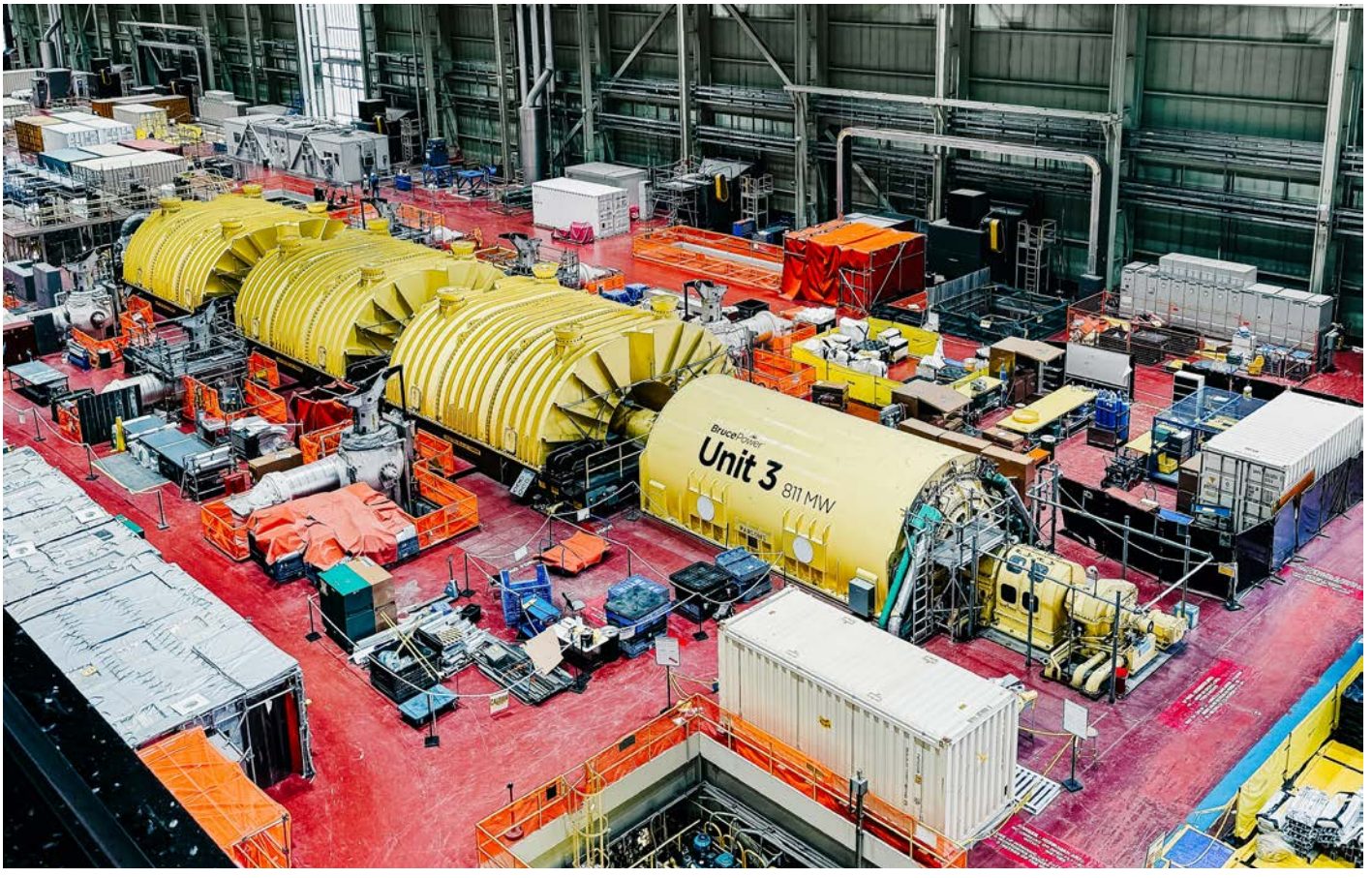

Innovation


at work

Setting a *new standard for safety* and performance in the nuclear and construction *industries*

By combining the latest technology and proven best-practices, Bruce Power and its partners are continuously improving performance and delivering value to Ontario's ratepayers.

Bruce Power and Ontario's nuclear industry are *world leaders* in nuclear *refurbishment*



FIRST ROBOTICS USED ON A CANDU REACTOR FACE

In a testament to Bruce Power's pioneering spirit, a groundbreaking innovation was put into use this year during the Unit 3 MCR outage, marking the first time automated robotic tooling has been used on a CANDU reactor refurbishment anywhere in the world and setting a new standard for safety and performance in the nuclear and construction industries.

HIGHLIGHTS

50%

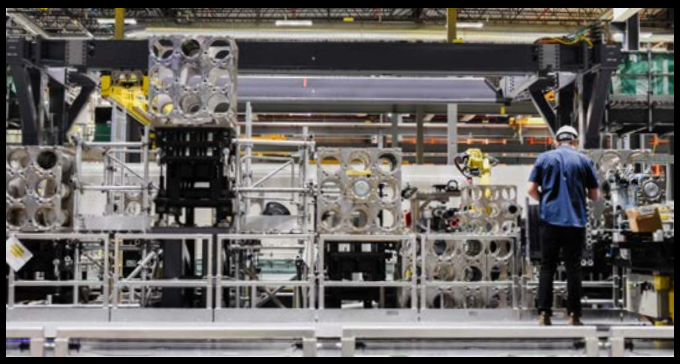
TIME-SAVINGS FOR MCR INSPECTION SERIES

Automated

ANOMALY DETECTION TOOL THAT CAN AUTOMATICALLY INDICATE INDICATIONS OF DAMAGE ON CALANDRIA TUBE SHEET BORE

Award-winning

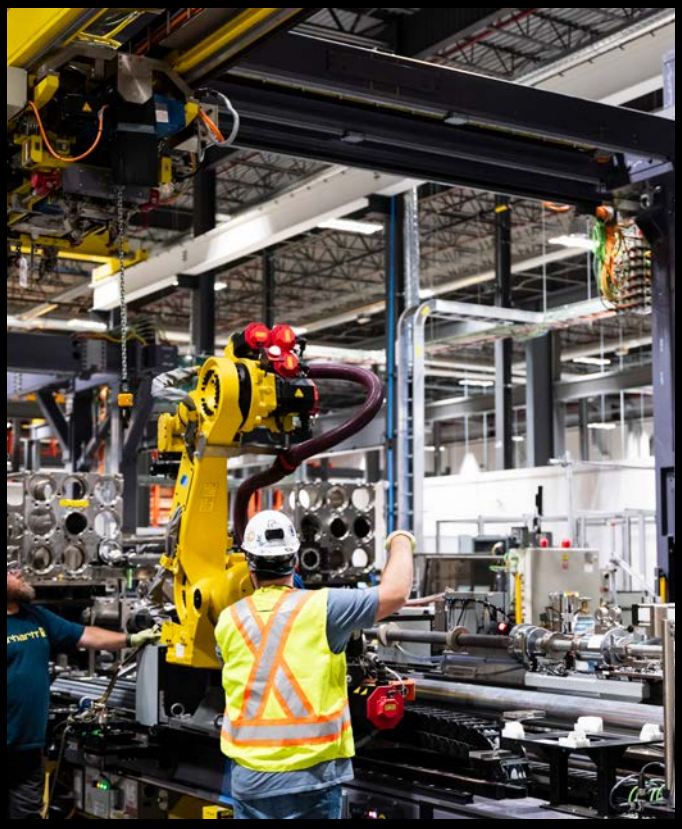
NAMED 'ENERGY INDUSTRY INNOVATION OF THE YEAR' FOR SETTING A NEW STANDARD IN NUCLEAR MAINTENANCE



By automating manual and repetitive process, robotic tooling delivers an unmatched level of precision, safety and efficiency by allowing skilled tradespeople to commission, maintain and operate some of the most innovative tooling available.

The first-of-a-kind, six-axis robotic tooling was commissioned in the Unit 3 vault before kicking off the inspection series. The tooling features groundbreaking use of artificial intelligence in visual inspections, the automatic digitization of records and precise, automated cleaning and inspection of the reactor face.

The deployment of this tooling was the culmination of years of hard work and collaboration between Bruce Power, the Tooling Performance Team, Shoreline Power Group, Calian Engineering and ATS Industrial Automation.



ENERGY INDUSTRY INNOVATION OF THE YEAR AWARD

Bruce Power's fully Automated Reactor Inspection Tooling was named 'Energy Industry Innovation of the Year' at the International Business Awards (IBA).

"Bruce Power's fully automated reactor inspection tooling represents a significant leap forward in nuclear maintenance technology. The development of this pioneering tool, in collaboration with leading industry partners, showcases their commitment to innovation and safety. This technology not only improves efficiency and reduces human error but also enhances worker safety by minimizing radiation exposure. The integration of robotics into reactor maintenance is a groundbreaking achievement, setting a new standard in the industry."

International Business Awards

Innovation *at work*

Bruce Power and Ontario's nuclear industry employ thousands of the most highly trained and skilled workers, all contributing to the success of operations and projects.

By equipping skilled tradespeople with cutting-edge technology, they're finding ways to increase the safety and quality of refurbishment work, while also realizing schedule and cost-savings through efficiency.

PROJECT 2030

In addition to Bruce Power's Life-Extension Program playing a key role in supporting Ontario's growing electricity needs, the company is investing in increasing the output from its existing reactors.

With the completion of MCR and Project 2030 upgrades in the 2030s, the site will have the capacity to produce 7,000 megawatts. The additional output from the existing units will be roughly the equivalent of adding a large-scale reactor to its site with current infrastructure.

Powering the Future: 7,000 MW in the 2030s

INNOVATION IN THE FIELD

The people who work in Bruce Power facilities know them best, and often times, innovation is sparked by something they've seen or an idea they've had.

This was the case when two Bruce Power employees, Michael Bonaventura and Andy Rutledge, came up with a novel approach to radiation safety that leverages 3D printing techniques using a tungsten-infused filament.

They came up with the idea and advanced it, proving their concept and leading to dose reduction in the station.

"Our standout moment came when we were tasked with shielding a hotspot that was already shielded with 100 pounds of lead blankets," said Bonaventura, Health Physicist, Radiation Protection Fleet Services. "We printed a seven-pound shield that reduced the dose rate from 139 to eight millirem per hour — a 94 per cent dose rate reduction and a 93 per cent weight reduction. With each shield we print, we are redefining what is reasonably achievable."

In September, Bruce Power received a Top Innovative Practice award by the Nuclear Energy Institute for this innovation, which is being adopted by the nuclear industry around the world.

Efficiency

Custom shielding can be developed, modelled, printed and fitted to the target hot spot within 48 hours, reducing time and cost compared to traditional manufactured methods for custom shielding while increasing efficiency and precision.

Ontario *needs nuclear power* as it forecasts an unprecedented *increase in electricity* demand in the coming decades

CREATING AN OPTION FOR ONTARIO

Through the ongoing Life-Extension Program, Major Component Replacement Project and Project 2030, Bruce Power is securing a long-term supply of clean electricity to support the province's growing energy needs.

To further support Ontario's growth development plans, Bruce Power has initiated a federal Impact Assessment to create an option to build up to 4,800 megawatts of nuclear capacity at the Bruce Power site — a project referred to as Bruce C.

"Electricity demand in Ontario is projected to rise by 75% by 2050, requiring 111 TWh more energy — equivalent to powering 4.5 Torontos. To safeguard economic growth and jobs, we must act now to strengthen our nuclear advantage, which drives Ontario's role as Canada's economic engine."

Hon. Stephen Lecce, Ontario Minister of Energy and Electrification

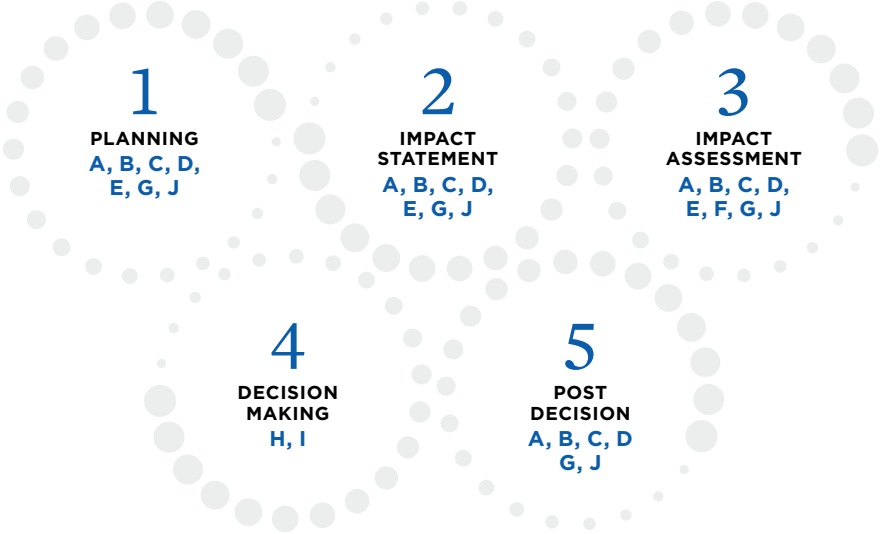
IMPACT ASSESSMENT PROCESS

Major nuclear projects are subject to an integrated IA led by the Impact Assessment Agency of Canada (IAAC) alongside the Canadian Nuclear Safety Commission (CNSC), the nuclear lifecycle regulator.

An IA is a phased planning process spanning over multiple years and looks at the environmental, economic, social, and health impacts of projects, as well as the potential impacts on Indigenous Peoples and their rights.

Marking the start of the IA Planning phase, Bruce Power's Bruce C Initial Project Description (IPD) was submitted and posted on the IAAC's Registry for public comment in August. In the lead-up to the IPD submission, Bruce Power put a strong focus on engaging with Indigenous Nations and Communities, local municipalities and the public, and this focus will continue throughout the IA process.

If the Government of Canada determines that the project is of public interest, then a license to prepare site will be issued as part of the integrated assessment process.



KEY PARTICIPANTS IN THE IMPACT ASSESSMENT SYSTEM

A. PROPONENT
B. INDIGENOUS GROUPS
C. IMPACT ASSESSMENT AGENCY OF CANADA
D. CANADIAN NUCLEAR SAFETY COMMISSION
E. OTHER JURISDICTIONS
F. REVIEW PANEL
G. FEDERAL AUTHORITIES
H. MINISTER
I. GOVERNOR IN COUNCIL
J. PUBLIC

At Bruce Power, *invention and innovation* drive the future by finding new ways to maintain and *improve equipment.*

The old saying is that necessity is the mother of invention.

Trevor Phillips, Mechanical Maintainer Journeyperson, performs a three-dimensional (3D) scan of a station component (fan impeller) to reverse engineer it by creating initial drawings with precise measurements. Design Engineering then produces fabrication drawings for Mechanical Maintainers to fabricate replacement parts no longer made by the original equipment manufacturer, all in the workshops on the Bruce Power site.

"I followed my father into the trades and became a Millwright," Phillips said. "Bruce Power supported the family while my father worked here and now it's doing the same with mine."

Trevor Phillips,
Mechanical Maintainer Journeyperson

Nuclear energy *sparks innovation*, builds strong *communities*, and creates a *cleaner tomorrow*

Isotopes

More than *50 million* nuclear medicine procedures are performed each year using *medical isotopes.*

More than 40 million diagnostic imaging scans are performed globally each year alone, with demand for therapeutic procedures growing each year.


for life

"Nuclear energy isn't just providing the reliable, affordable and clean power Ontario families and businesses need — it's also the source of life-saving, cancer-fighting medical isotopes used around the world."

Hon. Stephen Lecce, Ontario Minister of Energy and Electrification

Bruce Power has been a global leader in the production of medical isotopes for almost 40 years, contributing to the world's health care system through decades of isotope production.

In 2024, Bruce Power doubled down on the isotope program in Unit 7's Isotope Production System (IPS), responding to increasing demand for cancer-fighting lutetium-177 through the installation of a second production line. The increased production comes at a time that global demand for the isotope continues to grow.

Bruce Power also committed to the future of nuclear medicine by partnering with Sunnybrook Foundation for the funding of a new clinical trial using medical-grade cobalt-60, which is produced at Bruce Power and used in the treatment of brain tumours.

Bruce Power is proud of the role it plays in powering medical innovation and fighting cancer. Its isotope program is crucial for supply of these powerful medical tools, helping make Canada a global leader in the production of medical isotopes used in the sterilization of medical equipment and in the diagnosis and treatment of certain forms of cancer, here at home and around the world.

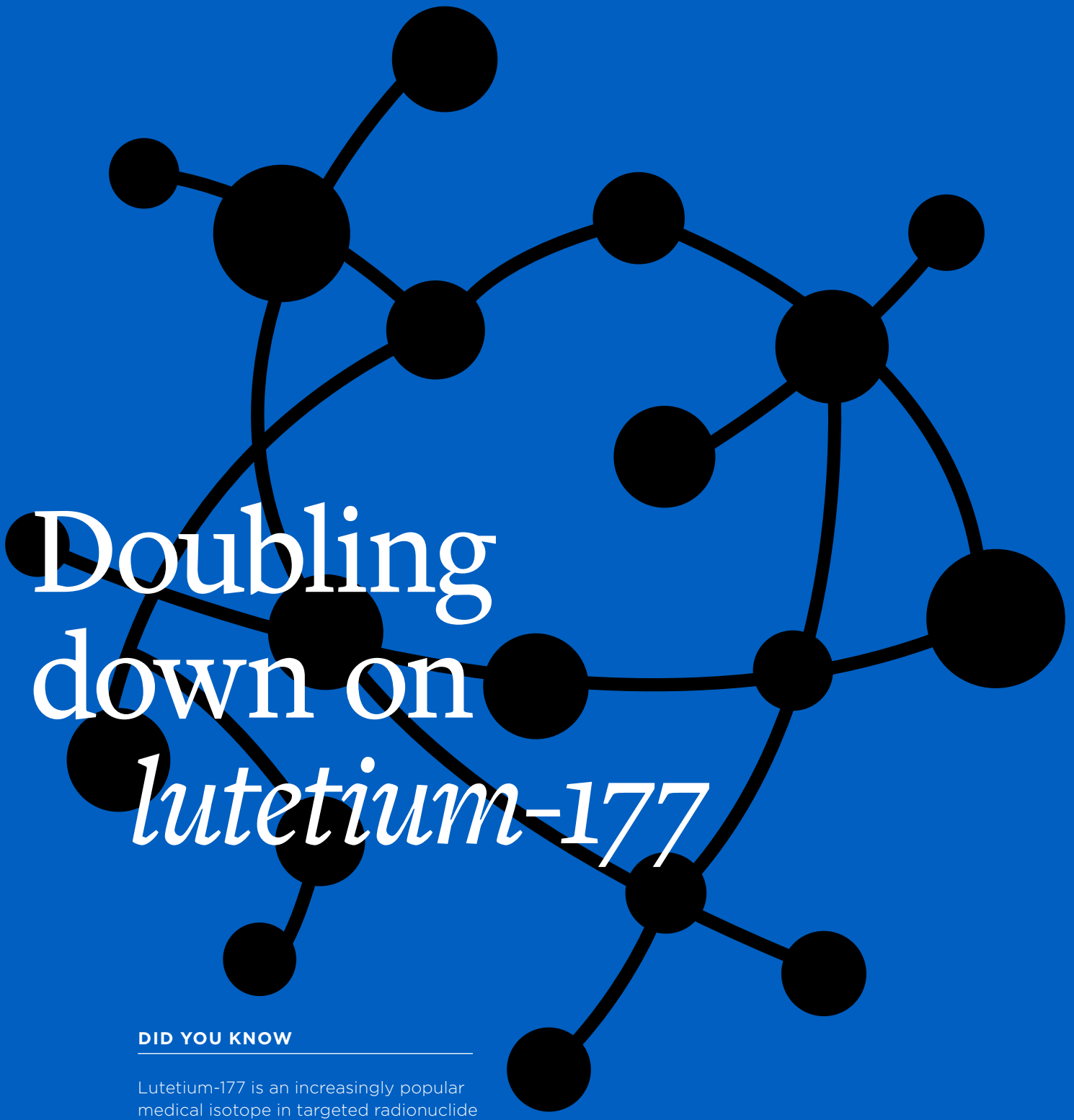
Advancing the future of nuclear medicine

In December, Bruce Power announced an exciting partnership with Sunnybrook Foundation in support of a potentially life-saving clinical trial to expand the uses of medical-grade cobalt-60 in stereotactic radiosurgery.

The funding, which will be provided over the next three years to Sunnybrook's Cancer Adaptive Ablation Therapy Program, will be used to study future uses for stereotactic radiosurgery employing High Specific Activity (HSA) cobalt-60, a medical-grade cobalt-60 produced at Bruce Power and used in the treatment of brain tumours employing the Leksell Gamma Knife®. HSA cobalt-60 radiation therapies limit damage to healthy tissues by delivering a single, high dose of radiation with a high degree of accuracy to the target, lowering the risk of side effects for some patients when compared to other types of radiation therapy.

The clinical research trial, which is expected to run through 2027, will advance care for 57 patients with cancer that has metastasized in the brain.

Bruce Power is proud to be a part of the future of nuclear medicine, supporting the research of the dedicated doctors, physicians, and medical professionals at Sunnybrook who are providing the foundation to advance cancer treatments and procedures to help save lives.



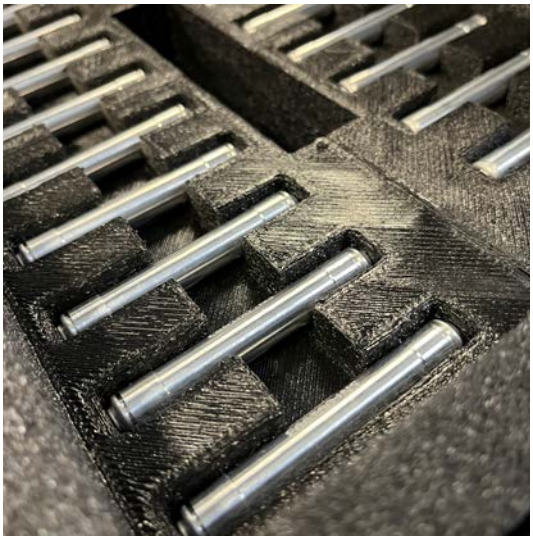
Doubling down on *lutetium-177*

DID YOU KNOW

Lutetium-177 is an increasingly popular medical isotope in targeted radionuclide therapy because it can attach to a targeting vector — a protein or peptide that has cancer-seeking abilities. Once it finds the tumour site, the beta particles it emits cause damage to the immediate area, shrinking the tumour.

MEETING GROWING DEMAND FOR LUTETIUM-177

In October, Bruce Power and its partners commenced commercial production of lutetium-177 on a second production line of the Isotope Production System (IPS) in Bruce Power's Unit 7, doubling production capabilities of the isotope just two weeks before the partnership celebrated its two-year anniversary of commercial operations.



It was a busy year for the Bruce Power isotope program, investing in increasing production infrastructure to ensure the IPS output will continue to meet the growing demand for lutetium-177.

The new production line is the final part of a phased approach to expand the capacity for Unit 7's production of lutetium-177. In 2023, innovations to the IPS were completed to increase the amount of ytterbium-176 inside each target that is sent through the IPS to be irradiated into lutetium-177, allowing each production cycle to yield more medical isotopes. These benefits will pay dividends as this increased yield will now be doubled with a second production line in operation.

Since commercial production began in 2022, the reliable, stable operation of Bruce Power's Unit 7 has meant that there have been no missed shipments of the isotope. Lutetium-177 is currently being used in various clinical and commercial radiopharmaceutical cancer treatments globally, and the increased production capacity is coming at a time demand for the isotope is on the rise.

The IPS in Unit 7 is a unique international collaboration among Bruce Power, Isogen *(a Kinectrics and Framatome Company)*, ITM Isotope Technologies Munich and Saugeen Ojibway Nation.

HOT CELL TO INCREASE PROCESSING CAPABILITY

In November, Bruce Power and its partners announced the commitment to building a hot cell facility in Bruce County.

A hot cell is a shielded facility that protects individuals from radioactive isotopes. It provides a safe containment area to manipulate equipment and work with isotopes to process them for shipment to customers.

The hot cell facility will smooth logistics in the transport of lutetium-177, allowing initial pre-processing of the isotope to take place locally before it is shipped to ITM laboratories in Germany for further processing and production into nuclear medicine.

This new hot cell facility will play a key role in the possibility of expanding use of the IPS to include production of other medical isotopes and is yet another way Bruce Power is leveraging Ontario's nuclear expertise and cementing itself as a cornerstone of the medical isotopes supply chain in Canada.


Isotope
Gamzook’aam

nin aakoziwin

Fighting Cancer Together

“Our investment in the Gamzook’aamin aakoziwin is an investment in the future of health care both at home and around the world.”

Chief Conrad Ritchie, Chippewas of Saugeen First Nation, speaking at announcement regarding new, local facility to support medical isotope production

Bruce Power's isotope Partnership with the Saugeen Ojibway Nation (SON), named Gamzook'aamin aakoziwin, translates from the Ojibway language to English as, We are teaming up on the sickness.

The Partnership includes an equity stake in the Isotope Production System for SON, which provides an annual revenue stream to the SON Communities.

The Partnership has helped carve a new path for SON and Bruce Power and provided a platform to explore new economic partnerships for the benefit of the SON Communities, as operations continue in SON territory.

Earlier this year, Bruce Power and SON expanded the equity partnership to include isotopes produced through the secondary production line installed in the IPS in Bruce Power's Unit 7.

The Gamzook'aamin aakoziwin partnership supports the global fight against cancer while creating new, meaningful economic opportunities within SON territory.

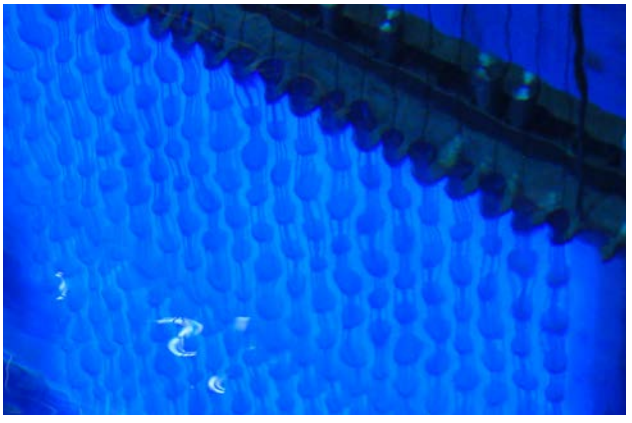
Cobalt-60 was used for the first time in Canada to *treat cancer* in October 1951 in *London, Ontario*

COBALT-60

In June, Bruce Power delivered its largest ever harvest of cobalt-60 during a planned maintenance outage in Unit 7, and also installed system innovations to further increase future production of cobalt-60.

Cobalt-60 is critical in the global health-care system, used in non-invasive cancer treatments, and to sterilize billions of single-use medical devices each year. Cobalt-60 is also critical in a wide variety of applications beyond the medical industry and is used in a wide range of industrial and commercial settings to safeguard health including keeping food safe and free of pathogens, sterilization of pharmaceuticals, and cosmetics and other consumer products.

This year's harvest also included delivery of High Specific Activity (HSA) cobalt-60, a medical-grade cobalt-60 used in the treatment of specialized brain tumours and breast cancers through non-invasive procedures. HSA cobalt-60 radiation therapies limit damage to healthy tissues by delivering a single, high dose of radiation with a high degree of accuracy to the target, lowering the risk of side effects for some patients when compared to other types of radiation therapy. Bruce Power is proud to be one of only a small number of worldwide producers of medical-grade cobalt-60.



DID YOU KNOW

MORE THAN

1.1 million

NUCLEAR MEDICINE PROCEDURES ARE PERFORMED IN CANADA EACH YEAR USING MEDICAL ISOTOPES

Cobalt-59

ADJUSTOR RODS ARE IRRADIATED FOR APPROXIMATELY 24 MONTHS, WHEN THE RESULTING COBALT-60 CAN BE HARVESTED DURING PLANNED REACTOR OUTAGES


Caring is

at our core

To achieve Bruce Power's vision of powering the future, it takes an unwavering commitment to being a responsible steward for people, communities and the environment.

The company's Sustainability Program has been developed using industry best practices and global standards, focusing on four key areas: Environment, People and Safety, Products and Services, and Community.

The responsibility to protect the environment and society through sustainable and responsible business practices can be achieved while continuing to deliver clean energy to the people, hospitals and businesses of Ontario.

SUSTAINABILITY

Bruce Power takes sustainability seriously and strives for continuous improvement through monitoring and results.

In its most recent assessment, Bruce Power achieved a favourable risk rating, maintaining a 'Low Risk' ESG Rating from leading third-party ESG rating agency Morningstar Sustainalytics.

The ESG Risk Rating combines an assessment of a company's exposure to industry specific ESG issues and how well a company is managing those risks through suitable policies, programs, and initiatives.

"Bruce Power is proud to deliver non-emitting, clean, reliable nuclear power to families and businesses across Ontario, and to produce and supply cancer-fighting medical isotopes across the globe. In doing so, we strive to make a positive impact on our community while contributing to economic growth, innovation and environmental protection."

Danielle LaCroix, Senior Director, Environment, Sustainability and Net Zero

CLEAN ENERGY CREDITS

As a leading producer of non-carbon emitting electricity for the province, Bruce Power offers clean energy credits (CECs) to help Ontario corporate electricity customers reach their environmental and sustainability goals.

CECs are electronic certificates that businesses can purchase from Ontario clean energy generators, including nuclear operators, to offset Scope 2 electricity emissions from their Ontario-based operations to achieve voluntary environmental targets.

Bruce Power's CECs are created from its investment in new and incremental nuclear generation output through a series of power uprate projects under Project 2030 and the Life-Extension Program. Building upon the success of the program in 2023 and 2024, Bruce Power is now able to offer CECs out to 2027.

NEW BIODIVERSITY POLICY

Bruce Power's 930-hectare site is home to a naturally diverse environment that contains a wide variety of species of plants and animals. Bruce Power recognizes the direct and indirect impacts and dependence on its surrounding natural environment in daily operations and in its supply chain.

It is both a responsibility as corporate citizens and essential to the business to act as a steward of the environment, take action to mitigate the impacts of operations on biodiversity and to support initiatives that protect and enhance natural habitats and ecosystems.

In early 2024, Bruce Power published an official Biodiversity Policy. This policy is an extension of its Environment and Sustainability Policy and outlines a commitment to the protection of biodiversity on- and off-site through actions and initiatives that preserve and enhance natural habitats and ecosystems.

It is both a responsibility as corporate citizens and essential to the business that the company acts as a steward of the environment.

CARBON OFFSET & CREDIT POLICY

Bruce Power's strategy focuses on implementing energy- and emission-reduction projects in its operations, finding alternatives to high-emission energy sources, and, where further reductions are not feasible, leveraging carbon offsets and clean energy credits (CECs) to further offset sources of emissions.

Bruce Power is proud to publish an official Carbon Offset & Credit Policy. The policy outlines a commitment to purchasing credits that are real, measurable, and additional, with methodologies that are independently validated and verified, that demonstrate long-term environmental benefits.

MINIMIZING AND OFFSETTING EMISSIONS

Bruce Power is taking steps to ensure it minimizes and offsets emissions from routine undertakings such as vehicles, machinery, buildings, and equipment.

In 2024, Bruce Power completed a trial project using biodiesel to fuel a sample of vehicles and equipment on its fleet. While a measured reduction of two tCO_2e was not significant, this pilot demonstrated feasibility and a much larger potential of reductions.

"I'm proud to have Bruce Power in our community for its major *economic contributions* and investments in health care, education, and environmental conservation."

Tyson Devitt, Contract Officer for Steam Generator and Preheater Inspections

Two of the main economic drivers in the Clean Energy Frontier Region of Bruce, Grey and Huron Counties are nuclear energy and agriculture.

Family ties run deep in both of those areas for Tyson Devitt, a Contract Officer for Steam Generator and Preheater Inspections, who started his career at Bruce Power 15 years ago while his father, Blake, was on the final stretch of his more than 45 years on site.

They also work the land together, operating the multi-generational Devitt Farms along with other family members, as well as Stone Bridge Flour, which mills locally grown wheat, spelt and rye into high-quality flour.

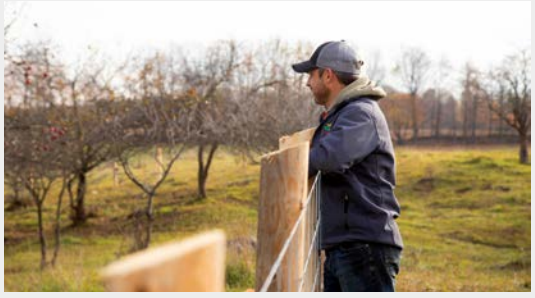
Tyson Devitt and his father Blake on a site visit for Take Our Kids to Work Day in 1995.

An important part of achieving the company's vision of *powering the future* is never wavering as *steward of the environment*

Being a good corporate citizen and maintaining excellent governance is achieved by integrating strong Environmental, Social, and Governance (ESG) principles into Bruce Power's business strategies and operations. The aim is to continuously improve performance in each of these areas to exceed industry standards and expectations.

ALUS PROJECT

Bruce Power partnered with the Alternative Land Use Services (ALUS) Program to invest over $900,000 through the ALUS New Acre Project. The project supports over 20 farmers per year in Grey and Bruce counties to establish and maintain locally led and approved nature-based projects on marginal or ecologically sensitive land. 2024 was the third and final year of the partnership.



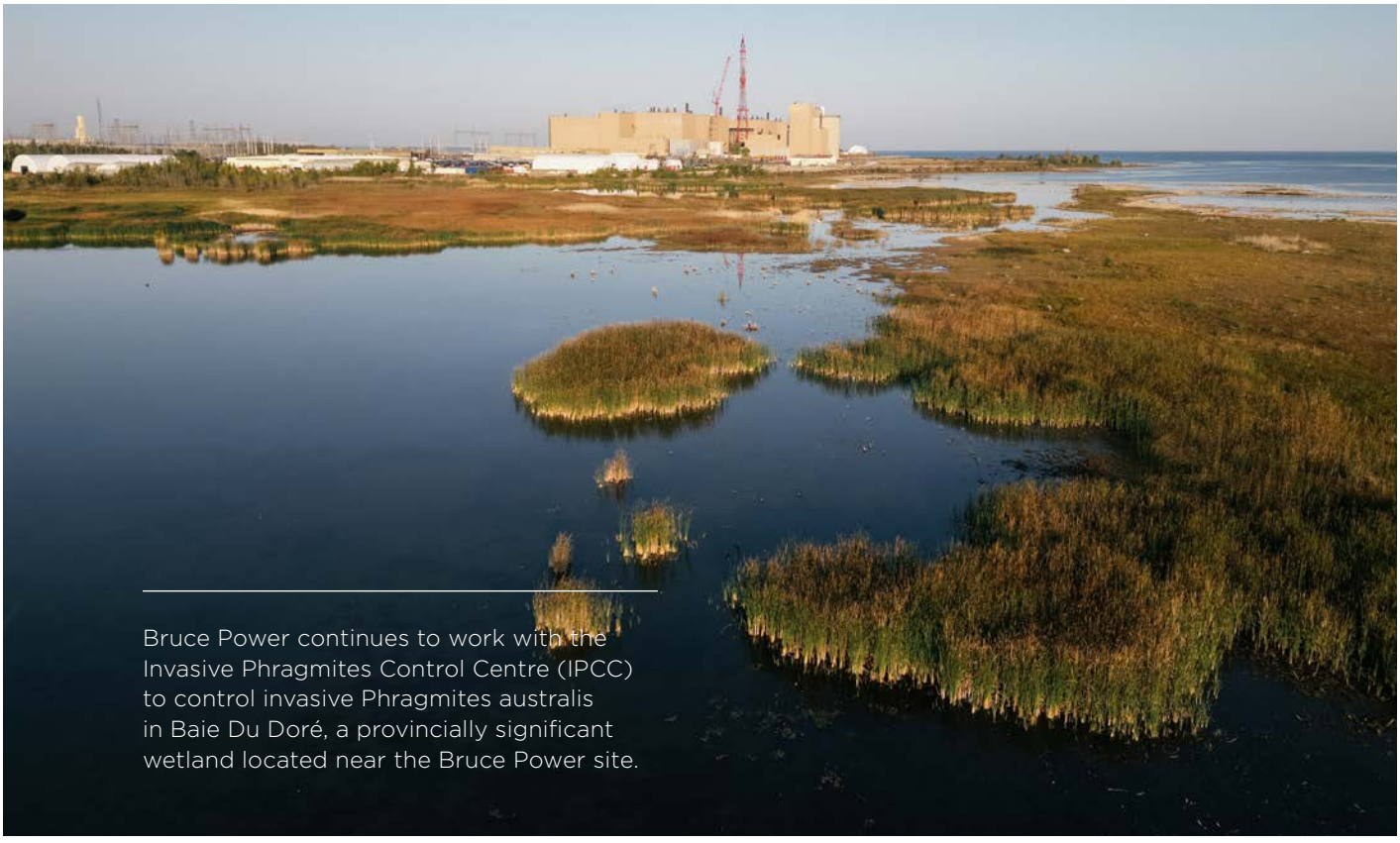
DID YOU KNOW

In 2024, the farmers in the New Acre Project established 200 acres of nature-based projects that will enhance local climate resilience and farm productivity while generating ecosystem services, including:

25%
MORE BIRD SPECIES THAN NON-ALUS FARMS

200%
INCREASE IN NATIVE POLLINATOR DIVERSITY

300%
INCREASE IN POLLINATOR ABUNDANCE



Bruce Power continues to work with the Invasive Phragmites Control Centre (IPCC) to control invasive Phragmites australis in Baie Du Doré, a provincially significant wetland located near the Bruce Power site.

WETLAND RESTORATION AND FISHERY OFFSET PROJECTS

Bruce Power's primary offset project, the removal of the Truax Dam, continues to be monitored to quantify the increased production in fish biomass as a result of the dam removal. Bruce Power also collaborates with local Indigenous Nations and Communities to identify, develop and implement additional offsetting projects that are meaningful to each community.

Bruce Power is working with the Métis Nation of Ontario on activities to restore Bothwell's Creek, near Leith, Ontario. In May 2024, 50 trees were planted in the riparian zone along Bothwell's Creek during a community tree planting event to support riparian habitat development and bank stabilization along Bothwell's Creek.

Bruce Power continues to support the Coastal Waters Monitoring Program, led by the Saugeen Ojibway Nation (SON). Beginning in 2019, this program aims to establish a comprehensive baseline inventory and maintain continued annual monitoring of the nearshore habitats and wildlife of the SON Territory. Bruce Power continues to work with the SON and looks forward to developing a meaningful offsetting project that is supported by the community.

In 2024, Bruce Power continued to work with the Historic Saugeen Métis and other community partners to remove Phragmites australis, an invasive reed that degrades fish habitat, along the shoreline of Lake Huron.

CLIMATE RESILIENCY

Bruce Power goes beyond regulatory compliance by driving innovation and strategic research in environmental protection, including assessment and analysis of how the environment is changing and impacting its site and operations.

In 2024, Bruce Power collaborated with the Nuclear Innovation Institute to launch The Climate Project, which is an accessible online hub and outreach program that will serve as a resource for sharing localized scientific research on climate change from sources including academia, governments, Indigenous groups, conservation authorities, NGOs, and industry partners.

Safe and

Wesley George,
Emergency and Protective Services

reliable

Reed Stauffer,
Emergency and Protective Services

Safety First is Bruce Power's Number 1 *Value*

Bruce Power is committed to living its number one value of Safety First.

It means that safety is woven into all aspects of the company's culture and it's why it is always applying best practices, innovating, and learning from leading-edge research. Whether protecting employees, the public or the environment, Bruce Power works 24 hours a day with safety at the forefront of everything it does.

EMERGENCY RESPONSE

Bruce Power maintains a robust and multi-faceted safety program, including its Emergency and Protective Services department which features an award-winning security service, fully equipped fire department, ambulatory services and an around-the-clock emergency response organization.

Bruce Power's dedicated team of nuclear professionals never stops improving the depth of the company's safety systems and training that allows the company to respond to any emergency on site.

INVESTMENT INTO FIRE SAFETY

In October, Bruce Power officially cut the ribbon on a new Fire Brigade Facility as a part of the ongoing enhancements to Emergency and Protective Services.

The building, a former steam plant, was converted over the course of several years and multiple phases to decommission, remediate, and repurpose the building into the Bruce Power Fire Brigade Building, removing the boilers and equipment to prepare the building for its new life as a fire hall.

The company invested more than $8 million in the project, which includes a new workout room, updated office areas, crew workspaces and a large garage with an exhaust collection system so EPS vehicles can be housed inside, ready for action when an emergency call comes in.

The upgraded facilities provide firefighters with the amenities and tools they need to be at their best while on duty.

Chemical decontamination innovation reduces radiation dose to workers

Bruce Power was recognized by its peers through the Information System on Occupational Exposure (ISOE) program, which is co-sponsored by the International Atomic Energy Agency (IAEA), for its world-class performance in an initiative to reduce radiation dose to workers.

Melissa Caley,
Chemical
Technologist

While Bruce Power's first MCR outage in Unit 6 was completed with an industry-best safety record for large projects, it was identified prior to the Unit 3 MCR that dose rates in the unit's Primary Heat Transport (PHT) system were significantly higher, requiring an innovative approach to maintain the viability of the project.

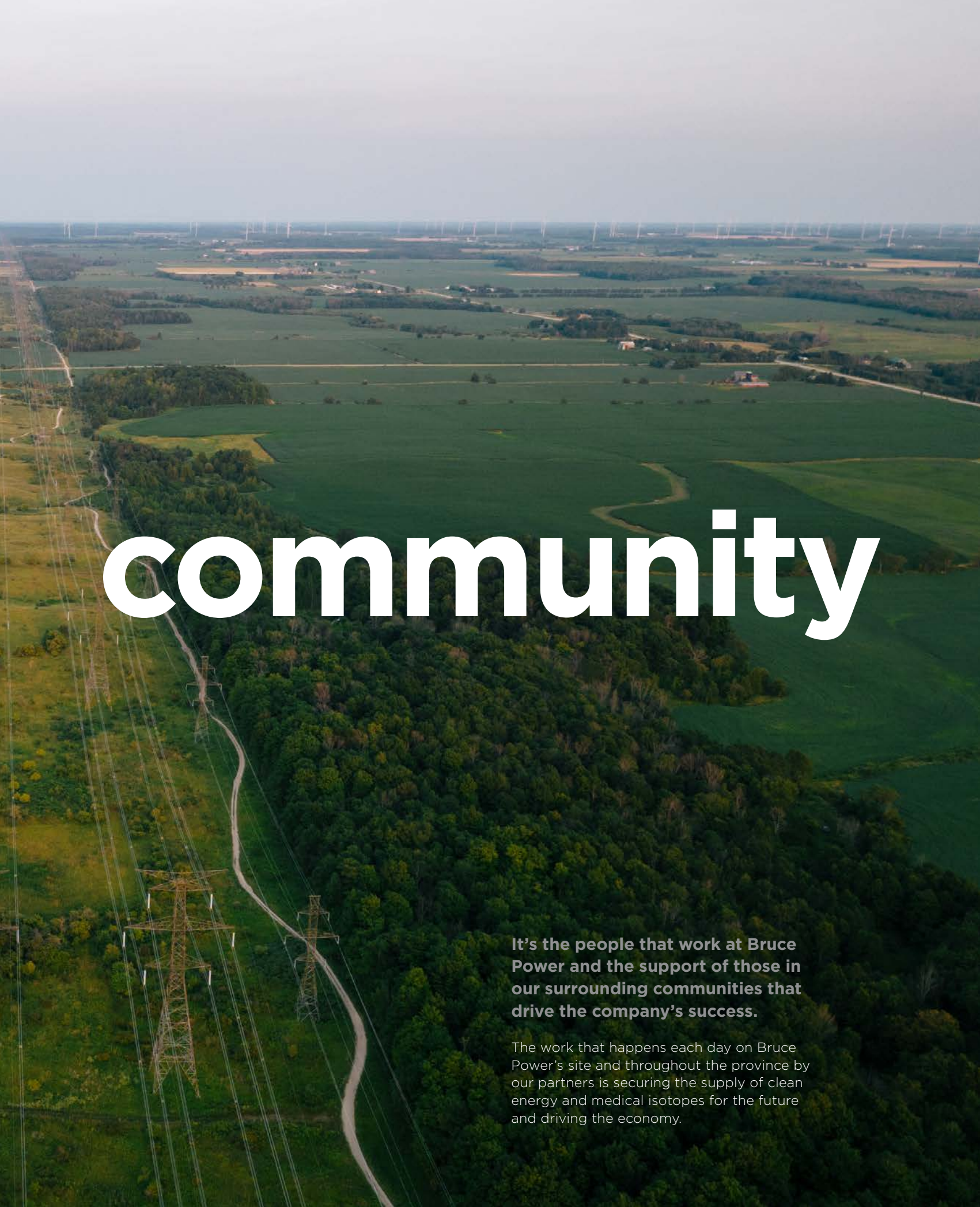
A chemical decontamination of the PHT system at Low Level Drain State was identified as the most appropriate course of action. The Chemical Decontamination project was a technically complex, first-of-a-kind project that involved 11 different skids to inject chemicals, heat, pump and sample the water, filter out particulate, and three banks of three Ion Exchange (IX) columns to remove the dissolved cobalt-60 as well as a process to slurry out the spent resin.

As a result of the innovative chemical decontamination, dose rates around the PHT feeders and headers were reduced by a factor of five, and general vault dose rates were reduced by a factor of three, ensuring the Unit 3 MCR project was viable for the company and workers. In total, it is estimated this process saved 3,800-person Roentgen Equivalent Man (REM is the measurement of radiation exposure to people), when compared to the baseline dose estimate before chemical decontamination.

First-of-a-kind project

DOSE RATES AROUND THE PHT FEEDERS AND HEADERS WERE REDUCED BY A FACTOR OF FIVE

Investing in



community

It's the people that work at Bruce Power and the support of those in our surrounding communities that drive the company's success.

The work that happens each day on Bruce Power's site and throughout the province by our partners is securing the supply of clean energy and medical isotopes for the future and driving the economy.

Bruce Power has had the privilege of contributing to *the community* and supporting numerous *local programs*

Bruce Power and its partners invest more than $2 million annually to support initiatives that focus on health and wellness, youth development, minimizing environmental impacts, community engagement and Indigenous youth development, cultural, recreational and educational programming.

Community *support*

POLLING SHOWS SUPPORT FOR BRUCE POWER IS STRONG

85%

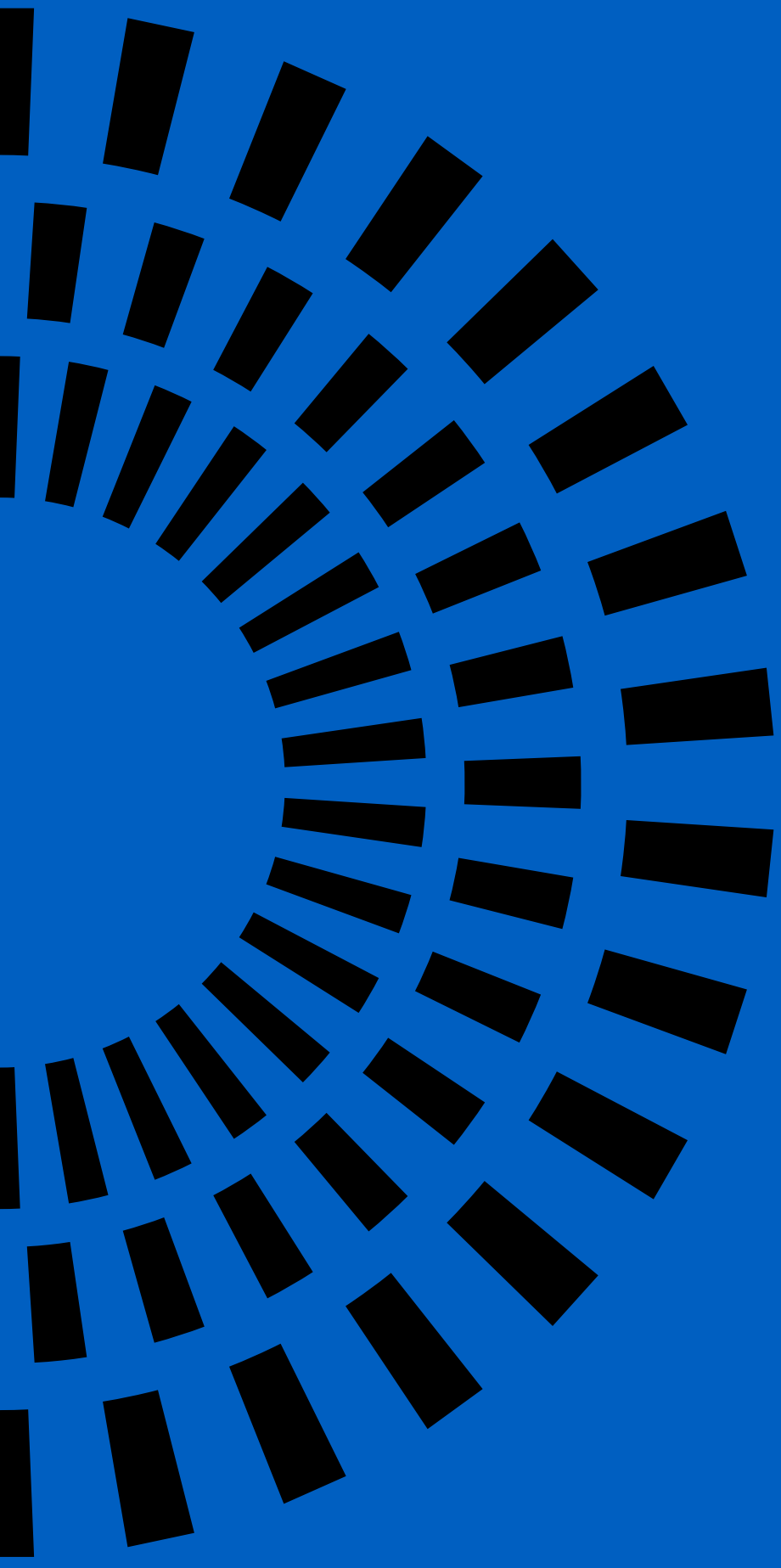
OF RESIDENTS IN THE CLEAN ENERGY FRONTIER REGION OF BRUCE, GREY AND HURON COUNTIES WHO ARE FAMILIAR WITH BRUCE POWER HAVE A POSITIVE IMPRESSION

93%

AGREE THAT EXPANDING THE BRUCE POWER FACILITY WOULD CREATE JOBS IN THE COMMUNITY

86%

BELIEVE THE EXPANSION WILL BE GOOD FOR THE COMMUNITY



93%

HAVE CONFIDENCE THAT THE BRUCE POWER FACILITY OPERATES SAFELY

92%

AGREE THE COMPANY POSITIVELY ENGAGES WITH THE COMMUNITY

81%

OF RESIDENTS SUPPORT THE POTENTIAL EXPANSION OF THE BRUCE POWER FACILITY

"Understanding the opinions and priorities of our community is essential to make sure we're doing the right things and sharing the right information."

James Scongack, Chief Operating Officer and Executive Vice-President

Strengthening our relationships

The Indigenous Community Investment Fund supports various initiatives including *youth skill development* and recreation programs, cultural *events*, *scholarships* and Indigenous Community *food banks*

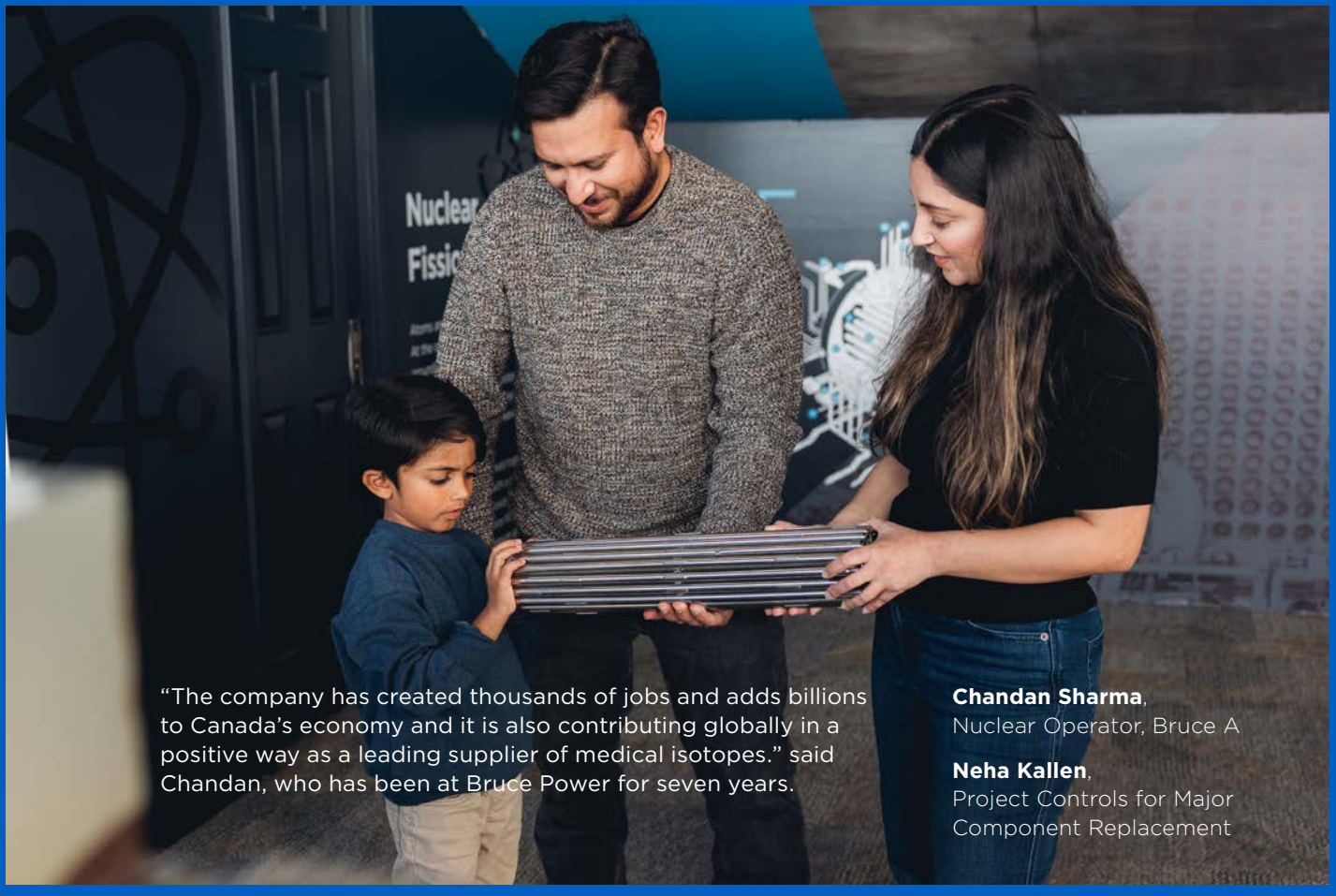
Bruce Power is committed to respecting Indigenous history and culture and moving forward in the spirit of reconciliation and respect, while leading by example in its community and industry.

Bruce Power has worked closely with the Saugeen Ojibway Nation (SON), Historic Saugeen Métis (HSM) and the Métis Nation of Ontario (MNO) on a variety of community engagement activities and meets regularly on items related to training, employment, business opportunities, sponsorships and special projects.

Bruce Power is committed to being a good business partner, providing a great place to work, and supporting Indigenous communities in achieving their vision of growth and prosperity for their Communities. As part of these commitments, Bruce Power has driven actions through four key performance areas, including leadership, employment, business development and community relationships.

“I was drawn to Bruce Power’s *safety culture* and the people who work here are so *passionate about what they do.*”

Chandan Sharma and his wife Neha Kallen were drawn to Bruce Power for its culture and its support of surrounding communities.



“The company has created thousands of jobs and adds billions to Canada’s economy and it is also contributing globally in a positive way as a leading supplier of medical isotopes.” said Chandan, who has been at Bruce Power for seven years.

Chandan Sharma,
Nuclear Operator, Bruce A

Neha Kallen,
Project Controls for Major Component Replacement

Come see for yourself

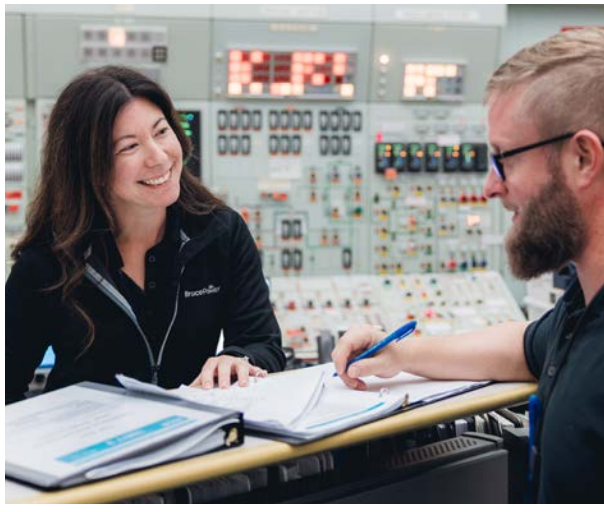
One of the best ways to learn about the benefits of safe, clean and reliable nuclear power is to visit the source to check out what we do on a daily basis and gain a better understanding of how it all works.

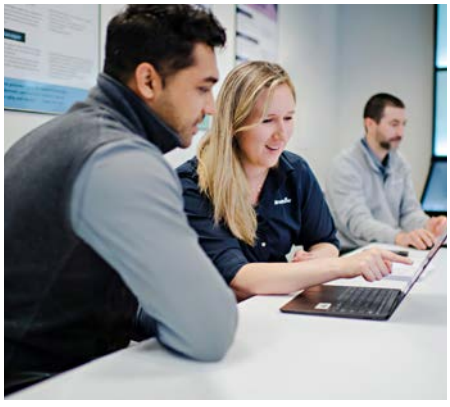
The Bruce Power Visitors' Centre welcomed approximately 15,000 people in 2024, guiding them through interactive and educational presentations, site bus tours, and exhibits for all ages.

Bruce Power's Summer Bus Tour Program draws thousands of participants from across Ontario, Canada and the world, providing the public with a rare glimpse inside the fence of one of the largest operating nuclear sites in the world.

Learn more at
brucepower.com/visit

Our people





Rachel Douglas,
Fuel Handling Field
Operations

Bruce Power is supporting women in traditionally male-dominated roles — such as Trades, Maintenance, Engineering, and Operations — and Rachel Douglas can see the change happening.

She always wanted to be an Operator, like her dad, and her Fuel Handling Field Operations Crew has equal gender representation.

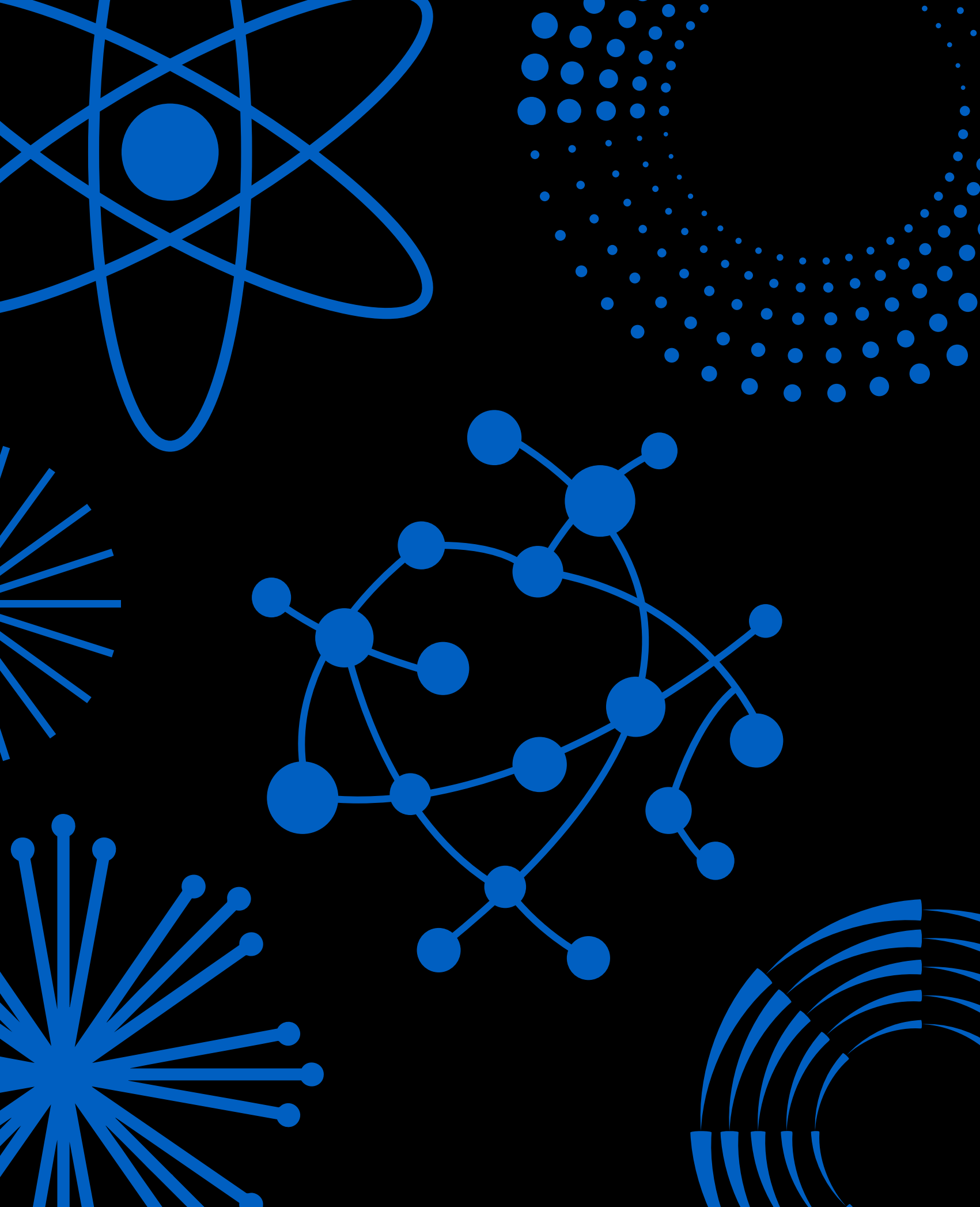
"As they hire more women into Operations, it is interesting to see how the crew balances are changing," she said.

During *nuclear fission*, a neutron collides with a *uranium atom* and splits it, releasing a large amount of *energy*

Atoms are constructed like miniature solar systems. At the centre of the atom is the nucleus; orbiting around it are electrons.

The nucleus is composed of protons and neutrons, very densely packed together. Hydrogen, the lightest element, has one proton; the heaviest natural element, uranium, has 92 protons.

The nucleus of an atom is held together with great force. When bombarded with a neutron, it can be split apart in a process called fission.



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